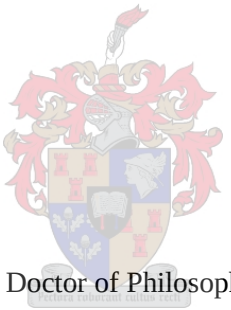
Foreign Capital Flows and Economic Growth in Selected Sub-Saharan African Economies

Omolola Oluwatoyin Adeola



Dissertation presented for the degree of Doctor of Philosophy in Development Finance (Faculty of Economics and Management Sciences)
at Stellenbosch University

Supervisor: Prof. Meshach Jesse Aziakpono

March 2017

Declaration

By submitting this thesis/dissertation electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

O. O. Adeola. March, 2017

Acknowledgements

I am thankful to the Almighty God for making this programme a reality.

I am indeed grateful to my Supervisor, Prof. Meshach Aziakpono for this directions and guidance throughout my PhD programme. His ingenious feedback and constant comments on various chapters of this thesis has made the research a success.

I am indebted to my family and sincerely grateful for their immeasurable understanding and support. To my beloved husband, Dr. Henry Ademola Adeola for your support and encouragement, you are my pillar of support, without you, this thesis would not have seen the light of day. To my wonderful children, Oluwadamilola, Oluwatomilola and Ifeoluwa for their cooperation and understanding during the PhD programme…. Your love kept me going. To my loving parents, Professor Emmanuel Olujimi Faturoti and Mrs. Olufunmilayo Funlayo Faturoti for imbibing in me the importance of education; their constant encouragement and moral support throughout the course of the PhD programme cannot be overlooked. To my brother, Dr. Oluwaseun Faturoti, and sisters, Dr. Omobusola Faturoti and Miss Oluwatosin Faturoti, you are appreciated for your love and immense support always.

Profound appreciation goes to the academic and non-academic staff of University of Stellenbosch Business School for their invaluable support during the course of my PhD and making the time during my programme a bearable one. I appreciate everyone but of note are Prof. Sylvanus Ikhide, Prof. Charles Adjasi, Dr. Heidi Raubenheimer, Mrs. Marietjie Van Zyl and Mrs. Norma Saayman. I acknowledge my colleagues in Development Finance, especially the 2013 PhD Cohort.

I appreciate the various comments obtained on the different chapters presented at all colloquia attended at the USB. I also appreciate the invaluable comments obtained on the empirical chapters presented at numerous conferences attended during the course of the PhD, particularly the 2nd Economic Theory Conference, Economic Research Southern Africa (November, 2014), 23rd South African Finance Association Conference (January, 2015), 12th African Finance Journal Conference (May 2015).

Finally, I am extremely appreciative of the funding provided by the University of Stellenbosch as I benefitted from the Development Finance departmental scholarship at the University of Stellenbosch Business School for two years which made my doctoral studies on a full time basis possible.

Dedication

I dedicate this thesis to the Almighty God, my husband, Henry Ademola Adeola and my children, Oluwadamilola John, Oluwatomilola Mary and Ifeoluwa Joanna Adeola.

Abstract

The need for foreign capital flows to developing countries to supplement domestic savings for investment and economic growth cannot be overemphasized. This is especially the case in sub-Saharan Africa (SSA) where there is high level of poverty and low domestic capacity to save. To achieve sustainable economic growth, countries require other sources of capital outside the domestic economy. This has led many countries in SSA to liberalise their financial systems with a view to attracting inflow of capital to the region. This has resulted in substantial capital flow to the region. However, the extent to which the various capital flows have contributed to the growth of the economies remains unclear. If they do contribute to economic growth, which of the capital flows contributes the most to the growth of their respective economies?

Against this backdrop, the study explored the effect of different foreign capital flows (foreign direct investment, foreign portfolio investment, foreign debt flows, official development assistance and remittances) on economic growth in four selected sub-Saharan Africa's major economies to determine the foreign capital flows that contributes most to the economic growth in these countries. Tests of Co-integration and Vector Error Correction modelling were used in the estimation to achieve this.

The thesis comprises of four empirical chapters with each chapter focusing on a particular country. A country each was chosen from the three sub-regions of SSA. South Africa, Nigeria, and Kenya to represent the regional economies of Southern, Western and Eastern Africa respectively; and lastly Mauritius was included as a success story in SSA.

The first empirical chapter explains the need for external capital flows to South Africa where there are high levels of poverty, unemployment, inequality and low domestic capacity to save. This chapter analyses the effects of four major capital flows into South Africa in order to determine the relative contribution of these flows to South Africa's economic growth. The second empirical chapter shows how foreign capital plays a major role in the economic growth of developing countries such as Nigeria through bridging the savings-investment gap. The effects of four major capital flows into the Nigerian economy were analysed to determine their relative contribution to economic growth. In light of vision 2030 for Kenya, the third empirical chapter provides a synopsis of capital flows in Kenya and analyses the effects of five major capital flows into Kenya to determine these capital flows' relative contribution to the economic growth of the nation. The last empirical chapter of the thesis analyses the

effects of three major capital inflows into the Mauritius economy in order to determine the relative contribution of these flows to Mauritius' economic growth.

Overall, it appears that the evidence gathered from this thesis indicates that remittances, which is a growing form of foreign capital flows, contributes the most to economic growth in two out of the four countries studied in sub-Saharan Africa. Foreign direct investment was also another capital flow that contributes to economic growth. This implies that policies should be geared towards the increase of foreign direct investment and remittances in sub-Saharan Africa to enhance economic growth.

Keywords: Foreign capital flows, Economic growth, Sub-Saharan Africa, Johansen Co-integration, Foreign direct investment, Remittances.

Table of contents

List of figures

List of tables

List of acronyms

2SLS	Two-stage least square
3SLS	Three stage least square
ADF	Augmented Dickey Fuller
AIC	Akaike information criteria
APT	International arbitrage pricing theory
ARDL	Autoregressive distributed lag
CAPM	Capital asset pricing model
CF	Capital flows
CV	Control variables
DBA/GDP	Ratio of deposit bank assets to GDP
DC/GDP	Ratio of domestic credit by deposit banks and other financial institutions to the private sector to GDP
DI	Domestic investment
DLS	Debt liability stock
DMO	Debt management office
EA	East Asia
EAP	East Asia and Pacific
ECM	Error correction model
EGARCH	Exponential generalised autoregressive conditional heteroskedasticity
EPZ	Export processing zone
FCF	Fixed capital formation
FDI	Foreign direct investment
FE	Fixed effects
FEBC	Foreign exchange bearer certificate
FFA	Foreign financial aid
FPE	Final prediction error
FPI	Foreign portfolio investment
GCF	Gross capital formation
GDI	Gross domestic investment
GDP	Gross domestic product
GDS	Gross domestic savings
GFDD	Global financial development database
GIVE	Generalised instrumental variable estimator

GLS	Generalised least square
GMM	Generalised method of moments
HIC	High income country
ILS	Indirect least square
IMF	International monetary fund
IV	Instrumental variables
KPSS	Kwiatkowski-Phillips-Schmidt-Shin
LA/GDP	Liquid assets to GDP
LAC	Latin America and the Caribbean
LDC	Less developed countries
LMF	Lane and Milesi-Ferretti
LN	Natural logarithm
LR	Likelihood ratio
LSDV	Least square dummy variable
MFR	Mixed fixed and random
MTEF	Medium term expenditure framework
NI	National income
NPEI	Net portfolio equity investment
ODA	Official development assistance
OECD	Organisation for economic cooperation and development
OLS	Ordinary least square
PES	Portfolio equity stock
PC	Private credit
PCSTS	Pooled cross section time series analysis
PI	Portfolio investment
PMG and MG	Pooled mean group and mean group
PPG	Public and publicly guaranteed
PPP	Purchasing power parity
RE	Random effects
REER	Real effective exchange rate
REM	Remittances
SA	South Africa
SAP	Structural adjustment program
SIC	Schwarz information criteria

SSA	Sub-Saharan Africa
SUR	Seemingly unrelated regression
TFP	Total factor productivity
USA	United States of America
VAR	Vector autoregressive model
VECM	Vector error correction model
WDI	World development indicators
WLS	Weighted least squares

CHAPTER ONE

GENERAL INTRODUCTION

1.1. GENERAL BACKGROUND AND MOTIVATION

The need for external capital by developing countries to supplement domestic savings for investment and growth has existed for decades. This is as a result of the gap between domestic savings and domestic investment, in terms of which countries require other sources of capital outside the domestic economy to sustain economic growth. Foreign capital could take different forms, such as foreign direct investment (FDI), foreign portfolio investment (FPI), foreign aid, remittances, equity flows and debt flows.

The effects of these capital flows on economic growth depend on the type of foreign capital and the type of economy (Aizenman, Jinjarak & Park, 2013: 373-374). How the various capitals flows affect economic growth has attracted a significant amount of interest in the literature, with no consensus having been reached. Because foreign capital could augment domestic savings, some researchers believe foreign capital flows would improve economic growth in developing countries (King & Levine, 1993a; Bailliu, 2000; Edison, Levine, Ricci & Sløk, 2002; Aizenman *et al*., 2013). While others have argued that foreign capital have a negative effect on economic growth (Mody & Murshid, 2011), some studies however suggest that foreign savings reduce domestic savings rather than supplement them (Taslim & Weliwita, 2000).

The need for external finance is epitomised in developing countries especially in Africa where there is high level of poverty. In a situation where there is hardly enough money for consumption, as in the case of most countries in sub-Saharan Africa (SSA), it becomes increasingly difficult to save. In addition, the advent of democratic regimes in Africa in the last few decades has seen countries pushing for globalisation. In recognition of the need to attract foreign capital, most developing countries in the global context have liberalised their external account to encourage capital inflows. Accordingly, in SSA many countries also liberalised their capital accounts in the last two decades, especially around the 1990s, to

encourage the inflow of foreign capital into their economies[1]. Inflows of capital are generally expected to stimulate and promote economic growth.

Consequently, as may be expected, foreign capital flows in form of FDI and FPI have been on the increase to Africa. For instance, looking at the trend of flows, there has been more than a six-fold surge in FDI to SSA from US$6.73 billion in 2000 to US$43.23 billion in 2008. Net official development assistance (ODA) also more than tripled from US$13.01 billion in 2000 to approximately US$40.27 billion in 2008. Remittances – a growing form of private capital flows to developing countries – have been on the rise steadily from around the early 1990s in SSA and grew sharply by about 3.5 times from US$8.27 billion in 2004 to US$29.6 billion in 2008. Portfolio equity net inflows, on the other hand, peaked at US$16.79 billion in 2006 but dropped to an astonishing negative US$5.625 billion in 2008 (World Bank, WDI 2013). The decrease in portfolio equity in 2008 coincided with the global financial crisis of 2008. This highlights the volatility problem of equity flows in the presence of economic changes.

Following the liberalisation of external accounts, however, capital flows to developing countries have been on the increase, the growth of the economy in developing countries has however, not kept pace. In fact, as at 2011 and according to the World Bank regional classification, SSA has the second lowest gross domestic product (GDP) per capita (US$1422.28 per annum) of all the world regions after South Asia[2] (US$1409.79 per annum). Compared to other developing countries such as East Asia and Pacific (EAP) that previously had a lower GDP per capita than SSA – notably in the 1980s and early 1990s – the GDP per capita in EAP increased by over 10 times from US$417.44 in 1990 to US$4693.38 in 2011, whereas in SSA GDP per capita increased by less than three times over the same period (from US$592.48 in 1990 to US$1422.28 in 2011) (World Bank, WDI 2013).

Although there has been some progress in the development of SSA countries between 1990 and 2012, the level of income remains still very low. The attraction of certain types of capital (i.e. those that might contribute negatively to the growth of SSA due to its volatility and the level of financial development in SSA) may be a consequence of this. This raises the question

[1] Countries that liberalised capital flows during 1995 and 2010 according to the IMF 63rd issue of the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) October, 2012 are Botswana, Burundi, Cape Verde, Ghana, Mauritania, Nigeria, Sao Tome and Principe, Senegal, Seychelles, Swaziland, and Uganda.

[2] South Asia consists of 8 countries which are Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka.

of whether every single one of these foreign capital types has actually contributed to the economic growth. If not, how do we identify the best form of external capital to attract to SSA to dramatically improve its economic growth?

In view of the 2008 global financial crisis, the benefits of capital flow to developing countries have been re-assessed (Reinhart & Rogoff, 2008; Macias & Massa, 2010; Milesi-Ferretti & Tille, 2011) as the effects of the crisis were exacerbated in developing countries through financial integration and volatile capital flows. Several studies have been conducted prior to and after the financial crisis, with findings documented on the effects of the various broad categories of foreign capital flows. In spite of the literature being replete with various studies on foreign capital flows, consensus is yet to be reached. Rather, a range of effects have been found, from positive (Bailliu, 2000; Reisen and Soto, 2001; Klein and Olivei, 2008; Driffield and Jones, 2013) to negative (Levine, 2001; Mody & Murshid, 2011), to some studies recording no significant effect on economic growth of the receiving country depending on the type of foreign capital flow.

Theoretically, foreign capital is supposed to augment domestic capital. According to the neo-classical theory, such inflow of capital will stimulate growth. The literature is explicit on the way in which the different forms of capital will contribute differently to growth. For instance, FDI contributes to growth through an increase in investment and spillover effects, whereas FPI contributes to growth positively through stock market liquidity; however, there is also evidence in the literature that due to its volatility, the effect of FPI could be negative. This goes for debt flows as well, in the event of changes in the macroeconomic environment of an economy, and foreign aid that could be very volatile and that finances consumption predominantly rather than investment (Arellano, Bulíř, Lane & Lipschitz, 2009). Remittances, however, lead to economic growth through smoothing household consumption and they promote private investment (Giuliano & Ruiz-Arranz, 2009).

In addition to the role of foreign capital in supplementing domestic savings and investment, it helps to overcome foreign exchange and import constraints, smoothing national expenditure, increasing the microeconomic efficiency of production (especially by reducing financial intermediation spreads) and by supplying technology and skills through FDI projects.

Despite the above positive effects, negative effects of capital flows may emanate from them which may include sharp exchange rate appreciation, which can lead to a rise in the current account deficit if spent on imports, and the discouraging of domestic savings and potentially

productive investment. Large external inflows can also reduce their intermediation efficiency in developing countries if their financial markets are underdeveloped and performing poorly (Kasekende, Kitabire & Martin, 1996). A strand of literature also argues that foreign capital is not merely ineffective when it flows into an economy, but actually destructive and harmful to the economy through real overvaluation of the currency, which subsequently reduces the viability of investment beyond any constraints imposed by an inadequate financial system (Prasad, Rajan & Subramanian, 2007).

Sub-Saharan Africa is a region rife with high poverty with 42.65 percent of people living below $1.90 a day as at 2012, while the ratio rises to 66.97 percent at $3.10 a day (World Bank, WDI 2015). This reveals an inability to save in this region, resulting in very low rates of domestic savings which will not be adequate for domestic investment. External finance can therefore be resorted to in order to augment domestic savings.

In sub-Saharan Africa in 2011, foreign direct investment flows increased 25 percent to an estimated US$35.6 billion, after declining sharply in 2009 and 2010 after the global financial crisis. The business climate is continuing to improve and favourable economic prospects are attracting investment capital flows into the telecommunications, real estate and retail sectors. Remittances have rebounded as well, posting a high of US$23 billion in 2011 (World Bank report, 2013).

There has been an increase in net inflows of portfolio equity over the years with an increase from about 0.303 percent of GDP in 1993 to about 2.766 percent of GDP in 1999, which represents the highest flow of portfolio equity received so far in sub-Saharan Africa (World Bank, WDI 2011). Portfolio equity dropped sharply in 2000 through 2002 as a result of the terrorist attack on the World Trade Centre in the United States of America (USA) (Figure 1.1), it regained momentum towards the end of 2002 and reached about 2.21 percent of GDP in 2006.

After the 2007 financial crisis in the USA, SSA witnessed a sharp reversal of the inflows of portfolio equity with a loss of about US$5.69billion (about negative 0.569 percent of GDP) in 2008. Portfolio equity in the region showed significant recovery during the latter part of 2008 through mid-2010, with portfolio equity rebounding from a low of minus US$4.706 billion in 2008 to negative US$ 0.679 billion in 2012. Currently, the SSA region is experiencing a downward trend again due to the effects of the sovereign debts crisis in the Eurozone (IMF, 2012). South Africa is the largest recipient of portfolio equity in SSA and therefore is mostly

affected by these changes in the level of portfolio equity to the region. Nigeria is also one of the highest recipients of portfolio equity flows in SSA.

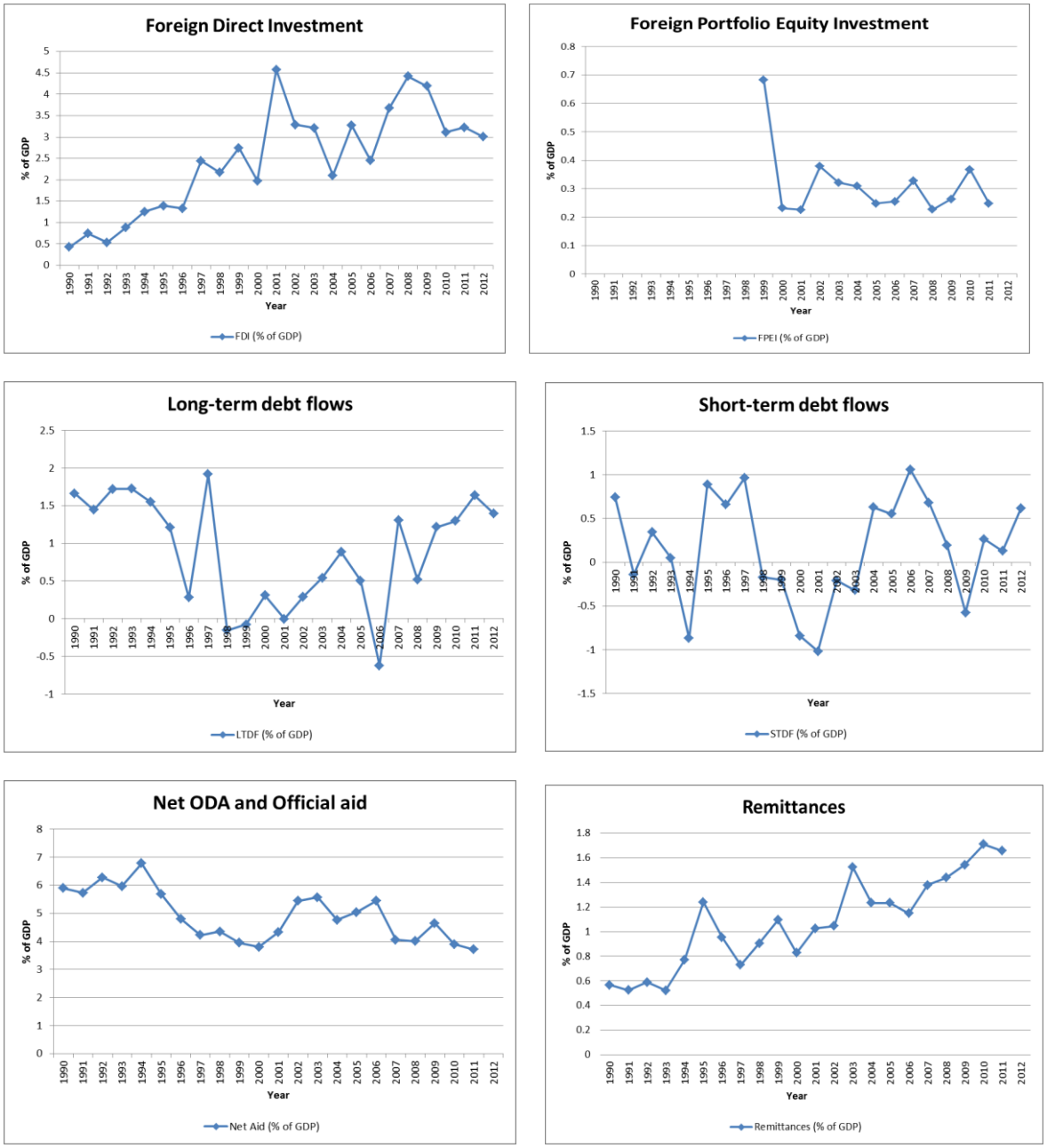


Figure 1.1: Capital flows as percentage of GDP in SSA

Source: Author's compilation based on World Bank WDI, 2014

According to the World Bank (2013), subsequent to SSA experiencing 10 years of high growth, a growing number of countries in Africa are seen to be moving into 'middle-income' status. These are countries achieving per capita income in excess of US$1,000 per capita income. A total of 22 states out of Africa's 48 countries, with a total population of 400 million people, have formally attained this middle-income status, while 10 countries,

representing 200 million people, are expected to attain middle-income status by 2025 if recent growth trends can be sustained or with some modest growth and stabilisation (World Bank, 2013).

SSA, however, still has the lowest GDP per capita of US$3,568.63 per annum as at 2014 (Figure 1.2), are the furthest back in terms of development, has a very low level of infrastructure and lacks adequate basic amenities such as water, electricity, roads and proper health care services.

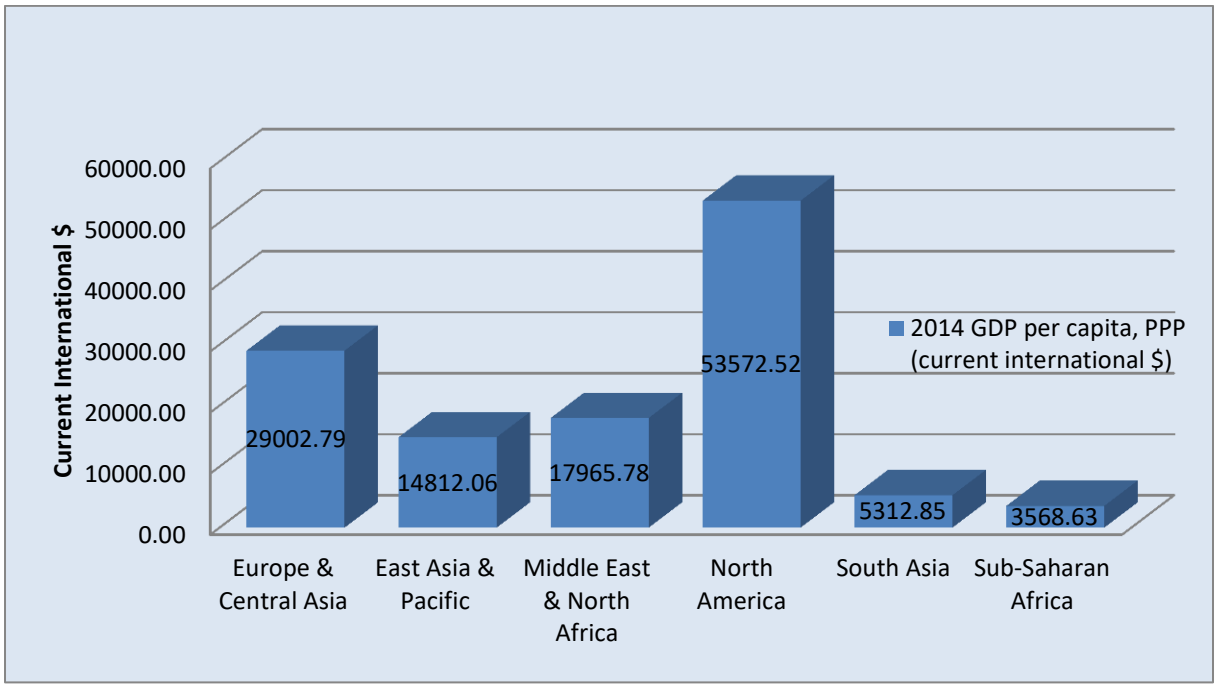


Figure 1.2: Regional GDP (PPP) per capita as at 2014

Notes: From left to right – Europe and Central Asia; East Asia and Pacific; Middle East and North Africa; North America; South Asia; and Sub-Saharan Africa.

Source: Author's based on World Bank WDI, 2015

Four countries are used as case studies in this thesis. The major economies in each of the three different sub-regions in sub-Saharan Africa were chosen to have representation from each sub-region. These countries are South Africa to represent Southern Africa, Nigeria to represent West Africa and Kenya to represent East Africa. Mauritius was the fourth country studied to represent the dynamic nature of sub-Saharan Africa as the country has recorded success stories in various aspects of the economy and classified the first in Africa in the Mo Ibrahim index 2014 for good governance (IMF, 2014). Mauritius was also ranked first in

Africa by the World Bank 'doing business' survey 2015 (Global Finance, 2015). The combined GDP of the four selected countries is over half of the total GDP of sub-Saharan Africa as at 2014 (Figure 1.3).

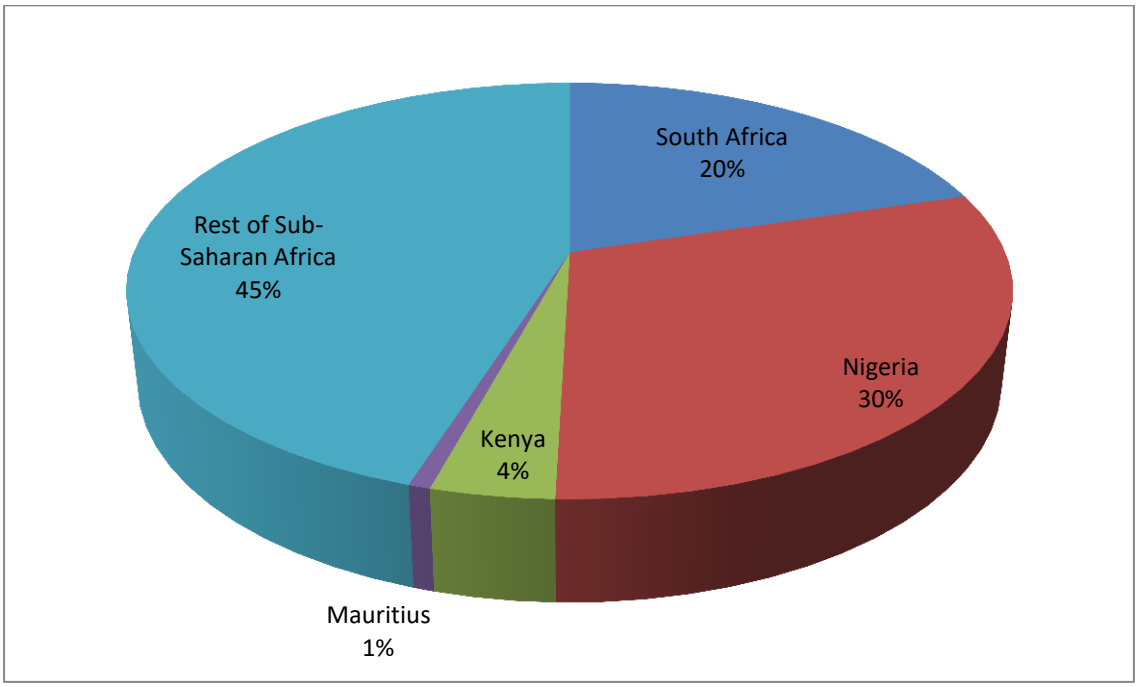


Figure 1.3: GDP, PPP (current international US$) as at 2014

Source: Author's computation based on World Bank WDI, 2015

Nigeria is the largest economy as well as the most populous country in sub-Saharan Africa, which is evident from its GDP size from Figure 1.3 above. Mauritius is, however, regarded as a leading economy in sub-Saharan Africa in terms of GDP growth in recent years.

1.2. PROBLEM STATEMENT

The poor growth experience in the past and the recent surge in growth of many economies in sub-Saharan Africa deserve research attention. Could foreign capital flows have been partly responsible for the growth pattern experienced in the region? The recent global financial crisis and its effect on many economies of the world further exemplify the potential negative effects of global financial integration and the resultant international capital flows. Given the inconsistent view reflected in the literature, the question is whether the various capital flows into the SSA region have contributed less to growth or were indeed part of the cause of the present level of growth of SSA.

The theoretical controversy has attracted several empirical studies (Levine & Zervos, 1998; Bailliu, 2000; Reisen & Soto, 2001; Chinn & Ito, 2006; Klein & Olivei, 2008; Aizenman *et al*., 2013). These studies generally tend to reflect conflicting results. The review of several studies on foreign capital flows – focusing on globalisation and financial integration – and economic growth by Kose, Prasad, Rogoff & Wei (2009) also emphasises the inconsistency in the literature and inconclusiveness of the growing literature. An examination of the available global literature reveals that most of them have devoted attention to one particular form of foreign capital inflow rather than comparing the contribution to economic growth of the alternative forms of capital inflows. For instance, Balasubramanyam, Salisu and Sapsford (1996); Borensztein, Gregorio and Lee (1998); Carkovic and Levine (2002); Hermes and Lensink (2003) and Alfaro, Chanda, Kalemli-Ozcan and Sayek (2004) explored FDI and found conflicting results. Levine and Zervos (1998), Reisen and Soto (2001), Chinn and Ito (2006), Klein and Olivei (2008) focused on foreign portfolio investment with inconsistent findings. Also, Pradhan, Upadhyay and Upadhyaya (2008); Barajas, Chami, Fullenkamp, Gapen and Montiel (2009), and Giuliano and Ruiz-Arranz (2009) focused on remittances, also with ambiguous results. Burnside and Dollar (2000); Easterly, Levine & Roodman (2003), and Bulíř and Hamann (2008) focused on foreign aid, yet again with mixed findings.

A few exceptions though are Reisen and Soto (2001) that studied FDI, equity flows, and long- and short-term bank lending; Aizenman *et al.*, (2013); and Driffield and Jones (2013), who examined the effects of remittances, ODA and FDI together. However, these studies looked at developing countries in general, and were thus not limited to SSA. Again, the cross-sectional analysis and panel data analysis used in these studies do not allow for country specific differences as generalisation is made for all countries studied based on the average effect obtained. These countries most likely do not have the same economic and institutional structure. The preferred form of estimation is therefore the time series analysis that caters for the deficiencies and limitations of the above estimation methods. To the best of the author's knowledge, there is no study so far that has compared the relative contribution of all the foreign capital inflows in SSA, and no study has yet compared private capital flows in addition to official capital flow (foreign aid) and remittances in SSA especially on a time series basis for the major economies.

In addition, no study has looked at how the effect would differ depending on the level of growth or development of the receiving country. By exploring the effect of each of the capital flows, one would be able to determine in which way foreign capital contributes to the

economic growth of countries in SSA. Understanding the type of foreign capital that contributes mostly to growth would help to channel efforts to attract such capital flows that would contribute most positively to sustainable growth in SSA instead of just attracting all the foreign capital flows.

1.3. RESEARCH QUESTIONS

The research questions addressed in this thesis in relation to each of the four countries are:

i. What is the relative contribution of the various capital flows to the economic growth of each of the four selected sub-Saharan African countries?

ii. Which one of the capital flows makes the greatest contribution to economic growth or benefits the four identified countries most?

iii. To what extent are country characteristics responsible for the type of foreign capital flow attracted and if it determines the effect of capital flows on economic growth in each of the four selected countries?

1.4. THESIS AIM AND RESEARCH OBJECTIVES

The main aim of this study is to investigate and determine the relative contribution of foreign capital flows to the economic growth of selected sub-Saharan African economies so as to recommend policies for these countries to help boost economic growth. The specific objectives of this study are listed below based on the research questions highlighted above and apply to all four selected countries:

i. To determine the relationship and direction of causality between foreign capital flows and economic growth in the selected sub-Saharan African countries.
ii. To determine the relative contribution of foreign capital flows to economic growth in the selected sub-Saharan African countries.
iii. To determine if country characteristics have an impact on the type and level of foreign capital flows attracted and the effect of capital flow on economic growth.
iv. To present policy recommendations on the best foreign capital to be focused on and attracted to spur sustainable economic growth.

1.5. JUSTIFICATION, RELEVANCE AND CONTRIBUTION OF THESIS

Although various studies exist on foreign capital flows, most have focused on each type of capital flow, and their results are still ambiguous and inconclusive. A few that examined a group of capital flows together have done this for developing countries generally. Despite

currently available studies on developing countries from different regions (see Reisen and Soto, 2001; Aizenman *et al*, 2013; Driffield and Jones, 2013); the dearth of country specific study on SSA justifies the need for focusing on SSA. Furthermore, the unavailability of studies on these individual major economies covering private capital flows, official development assistance and remittances also justifies the need for the study.

The focus is solely on sub-Saharan African countries which have similar and peculiar social, economic and political conditions which will limit any form of bias due to sample selection of all the developing countries in the different regions of the world. The aim of concentrating on the selected major economies in sub-Saharan Africa is to shed light on the current situation in each of these developing African countries and the way forward as opposed to the generalisation of conclusions by authors based on all the developing countries lumped together. In addition, the use of time series analysis to capture country specific differences as opposed to panel and cross-country estimations previously conducted for SSA also constitutes a major contribution to the existing body of knowledge.

This thesis is a combination of private capital flows, official capital flow and remittances exclusively for SSA. As much as it is important to know the contribution of each capital flow in the economy, it is even more important to know the relative contribution of each capital flow to economic growth such that developing SSA countries can know which is best to attract. The results from this research is expected to show a clear distinction of the type of foreign capital that contributes the most to economic growth in SSA and therefore recommend specific policies that could be put in place to attract those types of foreign capital. This would enable SSA countries to benefit more from financial integration and liberalisation so as to limit the effects of global financial crisis.

This study is of great relevance to the governments of these selected sub-Saharan African countries as it gives a concise presentation of the effects of foreign capital flows in each country based on the structural differences and contextual background of each country. The results obtained are discussed based on the context of each specific country and therefore policy recommendations are made based on country specific needs. This helps the government to focus on developing targeted policies that will benefit its unique economy and lead to sustainable economic growth. This would also benefit other countries with similar issues as it would serve as a learning point for them.

1.6. ORGANISATION OF THESIS

This thesis is structured into eight chapters. Chapter one presents the introduction, motivation and background to the study. Here, the justification and relevance of the study are presented. The main aim and specific objectives of the thesis are stated clearly. It also states the research questions to be answered in this thesis.

Chapter two presents the conceptual framework and goes further to present the theoretical literature review on the five foreign capital flows studied in this thesis as well as the general empirical literature review.

Chapter three presents the research methodology. It starts with the theoretical framework on which this thesis is based and further explains the empirical methods employed in the estimation chapters, highlights the data sources and methodological issues, as well as the econometric procedure followed in the subsequent empirical chapters

Chapters four, five, six and seven are empirical analysis chapters on South Africa, Nigeria, Kenya and Mauritius respectively, and give a background of capital flows and economic growth in each of the selected countries. These chapters first of all present the motivation for each of the countries selected, and give a general background of the context of each country in terms of capital flows and economic growth. Each of these chapters provides a review of empirical literature specific to the country. It goes further to present and discusses the empirical results. It finally gives the conclusion and recommendation for each of the four selected countries.

Chapter eight summarises the study by giving a general discussion comparing and synthesising the results and implication of these results for each of the selected countries in sub-Saharan Africa. It highlights the implication of the results for policy measures as well. The concluding remarks are presented here, which compare the similarities and differences in the selected countries, and provide policy recommendations for government.

CHAPTER TWO

LITERATURE REVIEW

2.1. INTRODUCTION

This chapter focuses generally on the theory on foreign capital flows. It presents the conceptual framework, the theoretical literature review on the five different foreign capital flows studied in this thesis as well as the general empirical literature review. The empirical literature review covers the literature on capital flows and economic growth addressing each capital flow separately (Foreign direct investment, Foreign portfolio equity investment, Foreign debt flows (long- and short-term debt flows), Foreign Aid, and Remittances) and also reviews studies that have grouped two or more capital flows together in a study.

2.2. CONCEPTUAL FRAMEWORK

It is of great importance to define the major concepts in this study to provide the context in which each of them is being used in order to avoid any ambiguity in interpretation, especially for the foreign capital flows which are shown in the chart below (**Figure 2.1**). It is pertinent to note that some of these capital flows have been defined with slight variations in academic literature based on the commonly used measure of the variables used for estimation.

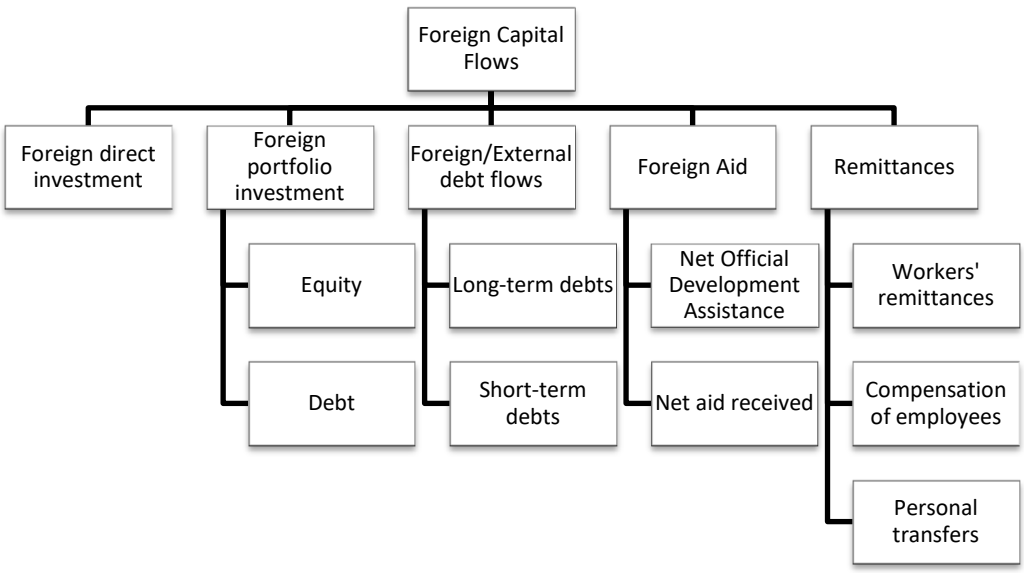


Figure 2.1: Conceptual Framework of Foreign Capital Flows

Source: Author's compilation

2.2.1. Foreign direct investment

Foreign direct investment (FDI) is an inflow of investment by a foreign investor to gain a lasting control over the management of an enterprise which is usually at least 10% of voting stock in an enterprise operating in an economy other than that of the investor. It is usually the sum of equity capital. It is the reinvestment of earnings, other long-term capital, and short-term capital as can be seen in the balance of payments (World Bank, 2013). FDI can be measured as stock or flow. The stock of FDI is the accumulation of FDI existing in an economy over a period of time. The flow of FDI is what is generated within a year which could either be inwards, meaning what comes in for the particular year; or outwards, what goes out in that year. Here, we are concerned with the stock of inward FDI.

According to Dunning and Lundan (2008), FDI is usually embarked upon due to different motivations by Multinational Enterprises (MNEs) such as market seeking, resource seeking, knowledge seeking and efficiency seeking. When MNEs embark on FDI for the purpose of getting a larger market, it is referred to as market seeking FDI. Resource seeking FDI is embarked on for the purposes of tapping into the natural resources of the host locations such as oil, gold, iron ore etc. Embarking on FDI for better improvement of skills through research and development, and improved technology is referred to as knowledge seeking. Efficiency seeking is the motivation where MNEs relocate to places where they can maximise their production cost for instance location with cheaper man power.

2.2.2. Foreign portfolio equity investment

Foreign portfolio investments (FPI) are investments in another economy which is referred to as the passive holdings of securities such as foreign stocks, bonds, or other financial assets which is less than 10% of voting stock. FPI can either be equity, which includes shares, stocks, participation, and similar documents that usually denote ownership of equity. It is often easier to sell off the securities and pull out the foreign portfolio investment in a country than FDI, therefore it is said to be a volatile form of foreign capital inflow.

2.2.3. Foreign debt flows

Debt includes instruments such as debentures, bonds, etc., money market, negotiable debt instruments and foreign bank deposits. Foreign or external debt flows are classified into long-term and short-term debt flows based on their initial maturity period for repayment. They attract debt servicing charges owed to foreign investors.

- Long-term debt flows – Long-term external debt is defined as debt that has an original or extended maturity of more than one year and that is owed to foreigners by residents of an economy and repayable in currency, goods, or services. The debt flows in form of long-term debts have to do with investment in bonds and other debt instruments.
- Short-term debt flows – This is a form of foreign portfolio debt investment sometimes generally referred to as debt flows or foreign bank lending (World Bank, 2013). Short-term external debt is defined as debt that has an original maturity of one year or less.

2.2.4. Foreign aid

Foreign aid is one of the foreign capital flows to developing countries. It is an official grant or loan received by a country (mostly developing) for the promotion of economic development, wealth and growth. There are two major forms of foreign aid:

- Official Development Assistance - Official Development Assistance (ODA) is the aid given to developing countries for development purposes. It can be from bilateral donors (given by a single donor country to a developing country) or multilateral institutions (given by a body or an organisation for example the World Bank or African Development Bank). It consists of disbursements of loans made on concessional terms (net of repayments of principal) and grants by official agencies of members of Development Assistance Committee (DAC), by multilateral institutions, and by non-DAC countries to promote economic development and welfare in countries and territories in the DAC list of ODA recipients. It includes loans with a grant element of at least 25percent (World Bank, 2013).

- Official aid received – This is the other type of aid given to a country to meet specific needs such as donations after a natural disaster, and aid for specific projects.

2.2.5. Remittances

Remittances refer to all transfers from abroad in cash or kind received in a country by residents or non-residents. It is an expanding source of external finance which is a form of private capital that goes to individuals. The total remittances to a country are from three sources of funds which are known as migrant remittances, compensation of employees and personal transfers.

- Workers' / Migrants remittances – Remittances are classified as current private transfers from migrant workers resident in the host country for more than a year, irrespective of their immigration status, to recipients in their country of origin (WDI, 2014).
- Compensation of employees – Compensation of employees is the income of migrants who have lived in the host country for less than a year (WDI, 2014).
- Personal transfers – Migrants' transfers are defined as the net worth of migrants who are expected to remain in the host country for more than one year that is transferred from one country to another at the time of migration (WDI, 2014).

2.3. THEORETICAL LITERATURE REVIEW ON FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH

2.3.1. Foreign direct investment

Aggregate production is the combination of human capital and physical capital. Physical capital can either be domestic or foreign owned capital in the form of FDI. Positive effects of FDI on economic growth can occur directly by increasing the stock of physical capital in the recipient country as foreign capital is accumulated indirectly by encouraging human capital development and strongly boosting technological upgrading. According to De Mello (1997: 8-10; 1999), FDI leads to growth through two processes:

(i) Capital accumulation – this is expected to lead to growth in the host country through the existence of foreign technology and new inputs in the receiving country's production function; and

(ii) Knowledge transfers – FDI is expected to increase the present stock of knowledge in the host economy via labour training and skill acquisition, and through the introduction of alternative management practices and organisational arrangements.

FDI can improve growth through increases in technology, assist in human capital formation, contribute to international trade integration, employment generation and growth, knowledge spillover and supplementing domestic savings among others (Barrel and Pain, 1997; De Mello, 1999; Gorg and Greenaway, 2004). All of the above benefits of FDI contribute to higher economic growth, which is an important tool for poverty alleviation (OECD 2002).

On the other hand, the risk of capital flight has constituted a negative effect of FDI on the growth of an economy as observed by Akinlo (2004) on the study of economic growth and FDI in Nigeria. Kant (1996) and Stiglitz (2000) also identified capital flight as detrimental to

economic growth. Capital flight implies that investors exploit the host economy and transfers gains to the home economy thereby leading to reduction of capital in the host economy. Foreign presence may furthermore reduce productivity of domestically owned firms especially in the short-run where there is no technology spillover whereas in the long-run, labour mobility may occur and lead to spillovers (Aitken and Harrison, 1999:607), although if FDI is concentrated in a specific sector, it might not have spillover effects. FDI is therefore expected to complement domestic capital rather than replace it.

2.3.2. Foreign portfolio equity investment

Equity portfolios affect growth differently from FDI. Levine & Zervos (1998: 537) suggest that liberalising constraints on foreign portfolio flows tends to increase domestic stock market liquidity, which could have a positive effect on productivity and growth. On the other hand, the effect of this could be negative on both the economy and households through various channels since large financial shocks that result in a sudden reversal of capital flows can lead to a sharp depreciation of the exchange rate, imports becoming more expensive, and rising prices of food and basic amenities, which will invariably weaken the purchasing power (Demirgüc-Kunt & Levine, 1996: 230).

IMF (2012) categorized factors driving portfolio equity flows to Africa into Pull and Push factors. The Pull factors include stable political environment; economic conditions, resilient nature of the economies against shocks from the global economy, returns on investment in the region which are still high due to limited competition and the untapped potential in the region. The Push factors include the need to diversify investment risk internationally, and the need to avoid unfavourable tax regimes in advanced economies which reduces returns on investment.

In general, portfolio flows tend to be larger in countries with well-organised and liquid markets (Rousseau and Wachtel, 2000). It also allows for diversification of risks by investing in foreign markets although Rousseau and Wachtel (2000) argued that portfolio flows can also be unsettling for an economy due to the fact that changes in market bias can lead to enormous outflows which often times result in exchange rate crises.

2.3.3. Foreign debt flows

According to Pattillo, Poirson and Ricci (2002: 4-6), there are different theories on foreign debt flows and economic growth. One theory suggests that a rational level of debt is expected

to have a positive effect on growth, while another posits that large accumulated debt stocks may be a deterrent to growth. The third theory combines these two postulations.

Ajayi and Oke (2012: 299) used the dual-gap theory or two-gap approach developed by Chenery and Strout (1966) to explain how foreign debt leads to economic growth. The dual gap analysis shows that development is a function of investment and that such investment, which requires domestic savings, is not sufficient to ensure that development takes place. Foreign capital features where there is a savings-investment gap and where an import-export exchange gap exists. The excess of investment over domestic savings is said to be equivalent to the surplus of import over export. This is then where the maximum level of import required to meeting growth targets is higher than the maximum level of export. This has also been used to explain foreign aid.

The channels through which government debt (level or change) can have an impact on the economic growth rate are through private saving; public investment; total factor productivity (TFP) and sovereign long-term interest rates (both nominal and real). The results provide further arguments for debt reduction to support longer-term economic growth prospects from a policy perspective.

A depreciation of the exchange rate can lead to increase in a country's external debt , and often leads to government cutting back on public spending (including social expenditure) in order to meet increased debt service obligations. On the other hand, sudden and large inflows of private capital will lead to inflationary pressures, real exchange-rate appreciation, a deterioration of the current account and a boom in bank lending (World Bank, 2013). Debt flows are more volatile than equity flows during times of crisis and therefore can be easily reversible (Reisen & Soto, 2001). This is common with short-term debt flows.

Generally, short-term debt flows can have varying effects on economic growth in the long-run based on its volatility that is the ability to be easily withdrawn (Reisen and Soto, 2001). Short term debt flows depend on the absorptive host country capacity (Durham, 2004). Due to the absorptive capacity of a country, this type of capital flow may not be linked to increase in growth. According to a World Bank report (2013), international bank lending and portfolio flows are more productive in a more developed financial environment. In spite of the strong evidence that capital flows have positive influence on economic growth, Stiglitz (2000) in his study on capital market liberalisation, economic growth and instability suggests otherwise. He argued after observing the Asian financial crisis that capital flow especially short-term

flows, in particular, creates financial instability and therefore has a negative impact on economic growth.

2.3.4. Foreign aid

Foreign aid is one of the foreign capital flows to developing countries. It is an official grant or loan received by a country (mostly developing) for the promotion of economic development, and growth. Foreign aid is a major source of capital (average of 53.8% of government expenditure of 50 aid dependent countries from 1975 to 1995) to the government (Svensson, 2000). It mostly goes into an economy through the public sector and it is used for public expenditure in most cases. It is mainly known to be used more for consumption purposes rather than investment.

The argument for aid is that it can be put to use where private capital cannot and Temple (2010) emphasises four main ways which is usually known as Bauer's paradox. These are: Poverty traps; the possibility of vicious circles; growth that is hindered by one or more binding constraints; and the role of complementary inputs, such as infrastructure or institutions. There is also the possibility of Dutch disease effect which depends on the portion of aid spent on productive investment in relation to that spent on consumption of final goods (Younger, 1992).

Foreign aid affects the growth of an economy mainly through development projects and investment rather than consumption. Foreign aid is usually used to fill in gaps in the economy, such as the savings gap (S-I)[3], which is a combination of the foreign exchange gap or external financing gap (X-M)[4], as well as the fiscal gap (G-T)[5]. The "two-gap" model specified in Easterly (2003: 30-31), as developed by Chenery and Strout (1966), has been employed to explain the link between foreign aid and economic growth. This is shown as: $g = (I/Y) / \mu$; and $I/Y = A/Y + S/Y$, where I = required investment; Y = output; g = targeted GDP growth; A = aid; S = domestic savings and μ = Incremental capital-output ratio (ICOR). This model explains how foreign aid increases investment and how investment leads to increase in economic growth.[6] This has also been used to explain foreign debt flows. Morrissey (2001) identified a number of mechanisms through which aid can contribute to economic growth, namely: "aid increases investment in physical and human capital stock; aid increases the

[3] The savings gap is expressed as 'S-I' and refers to the difference between domestic savings (S) and domestic investment (I).
[4] The external financing gap is expressed as 'X-M' and refers to the difference between imports (M) and exports (X). This has to do with the interaction between countries on trade.
[5] The fiscal gap is expressed as 'G-T' and refers to the difference between government expenditure and government income (taxation).
[6] Refer to Easterly (2003) for a detailed account of this process.

capacity to import capital goods or technology; aid does not have indirect effects that reduce investment or savings rate; and aid is associated with technology transfer that increases the productivity of capital and promotes endogenous technological change". The general theory behind the aid-growth theory is that physical capital leads to economic growth.

McGillivray *et al*. (2006) identified four main alternative views on the effectiveness of aid which are:

(i) Aid has diminishing returns
(ii) Aid effectiveness is influenced by external and climatic environments
(iii) Aid effectiveness is subjective by political situations
(iv) Aid effectiveness is dependent on the quality of institutions

The transfer of aid, might result in increase of national income, drive the relative price of non-traded goods and increase the returns to factor in the non-traded sector. The consequence will be a real exchange rate appreciation, and a decrease in the output of the traded goods sector, as factors of production move into the non-traded sector. An appreciation of the real exchange rate will have a negative impact on the competitiveness of an economy.

2.3.5. Remittances

There has been an increase in remittances over the years to developing countries. It is an expanding source of external finance which is a form of private capital that goes to individuals. Remittances are mostly driven by sound macroeconomic environment in recipient countries (Guiliano and Ruiz-Arranz, 2009). They are positively correlated with macroeconomic performance (domestic savings, investment, higher real income growth and financial development).

Remittances generally help to develop financial markets, finance entrepreneurial activities, act as insurance against shocks, finance household expenditure and household human capital formation, and bridge savings and external financing gaps. It also has potential to be harnessed into long term bonds as diaspora bonds – the Diaspora Bonds Model (Ratha et al., 2009). This would lead to an increase in growth. The literature has grouped migrant remittances into two main components, namely the endogenous migration approach and the portfolio approach (Elbadiwi & Rocha, 1992; Chami, Fullenkamp & Jahjah, 2005).

The endogenous migration approach is based on the economics of the family, which includes but is not limited to motivations based on altruism. Altruism is a situation in which the

migrant is concerned for the welfare of other family members therefore the migrant's consumption includes the consumptions of the other members of the household left behind in the home country. The portfolio approach isolates the decision to remit from the decision to migrate, and as such does not take into consideration issues of family bonds. According to the portfolio approach, the migrant earns income and decides how to allocate savings between host- and home-country assets. Remittances from the portfolio approach therefore stem from the decision to invest in home-country assets. The portfolio view is a theory of remittances that supports the view that remittances behave like other foreign capital flows. The effect of remittances could also be negative on the economy if they lead to an appreciation in the exchange rate (Amuedo-Dorantes & Pozo, 2004: 1410-1411).

2.4. EMPIRICAL LITERATURE REVIEW ON FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH

The literature is replete with various studies on foreign capital flows. Generally, capital flows have been found to have a range of effects, from positive (Bailliu, 2000) to negative (Levine, 2001; Murshid and Mody, 2011) with some studies recording no significant effect on the economic growth of the receiving country based on the type of foreign capital (Table A2.1).

Empirical literature that grapples with how foreign capital flows affect economic growth has grown over time and one can see that the observed effects are also often inconclusive. The growing analyses of this subject have focused on one aspect or form of capital flow or the other at a time. For example, studies that solely focused on FDI (Borensztein *et al*. 1998; Alfaro *et al*. 2004; Adjasi *et al.* 2012), equity portfolio investment (Levine & Zervos, 1998; Durham, 2004; Chinn & Ito, 2006), debt flows (Soto, 2000; Baharumshah & Thanoon, 2006), bank lending (Reisen & Soto, 2001; Baharumshah & Thanoon, 2006), foreign aid (Burnside & Dollar, 2000; Easterly *et al.* 2003), and remittances (Acosta *et al.* 2008; Guiliano & Ruiz-Arranz, 2009; Adenutsi *et al*., 2011; Lartey, 2013) have been previously documented in literature. These various types are further discussed briefly in different sub-sections in the course of this chapter.

While numerous studies have focused on each type of capital flow, their results are still ambiguous and inconclusive. Very few attempts have actually been made in general in comparing their contribution to economic growth. A few exceptions are Reisen and Soto, 2001; Aizenman *et al.* 2013; and Driffield and Jones, 2013. It is important to know the contribution of each capital flow on the economy but more importantly, the relative

contribution of each one to economic growth such that developing countries can know which is best to attract.

These foreign capital flows are most times used to finance investment in developing countries which would invariably have an impact on the economic growth of the country (Asiedu, 2002; Shaheen, *et al*, 2013). This comes into play where there is a gap between domestic savings and domestic investment, and then external finance could be used to supplement domestic savings. Foreign capital is also believed to accelerate economic growth through institutional quality conditions such as economic considerations, financial, institutional, and policy characteristics (Edison *et al.* 2002).

Bailliu (2000) in his study of 40 developing countries from 1975 – 1995 using panel generalised method of moments (GMM) estimation techniques observed that capital inflows promote higher economic growth for countries which have attained a particular development level in the banking sector, above and beyond any effects on the investment rate. Bailliu therefore concluded that domestic financial sector is an essential tool in the advancement of economic growth by international capital flows in developing countries.

Aizenman *et al.* (2013) observed that the link between growth and lagged capital flows depends on the type of flows, economic structure, and global growth patterns. In their study of 105 countries from 1990 to 2010 using panel data estimation, they found a robust relationship between FDI (both inflows and outflows) and growth but a smaller and less stable relationship between growth and equity flows. On the other hand, the relationship between growth and short-term debt was found to be nil before the 2008 financial crisis, and negative during the crisis period.

Prasad *et al*. (2007) in their study of 103 countries consisting transition, non-transition, industrial and non-industrial countries from 1970 to 2004 using cross-sectional regression and panel GMM estimation techniques, concluded that financial openness may be necessary to bring about domestic financial development. This suggests that even though activists in developing countries might decide to attain a certain level of financial development before pushing for financial integration, the benefits of financial integration and ensuing competition may be essential to spur domestic financial development.

The different results obtained by researchers that have worked on foreign capital flows, and economic growth emanate from differences across studies such as the measure of capital

flows in the observation, time period covered, country sample groups mostly aggregating developed and developing countries together, econometric estimation method adopted and the control variables used. In spite of these variations, most studies hitherto seem to be in agreement that the effect on economic growth depends on the particular type of capital flow (Aizenman *et al.* 2013; Driffield and Jones, 2013).

The effects of specific capital flows on economic growth obtained from empirical studies are discussed below under the different types of capital flows.

2.4.1. Foreign direct investment

Various studies that focused on foreign direct investment (FDI) have shown variable effects of FDI on economic growth. While most have discovered positive effects of FDI on economic growth (Blomstrom *et al*. 1996; Borensztein *et al.* 1998; Gorg and Greenaway, 2004, Alfaro *et al.*, 2004; Makki and Somwaru, 2004; Li and Liu, 2005; Adam, 2009; Adjasi *et al.*, 2012), some have observed negative effects (Konings, 2001; Carkovic and Levine, 2002; Lensink and Morrisey, 2006) while others have discovered no significant effect (Akinlo, 2004) or mixed effects (De Mello, 1999; Hermes and Lensink, 2003; Alfaro, 2003) (Table A2.2).

Some studies that found positive effect of FDI on economic growth have identified certain host country conditions necessary to be in place and prevailing policies as part of the requirements for FDI to be successful. For instance, Balasubramanyam *et al*. (1996) identified the policy environment while Borensztein *et al*. (1998), Balasubramanyam *et al*. (1999) and Bengoa and Sanchez-Robles (2003) believe that FDI has a positive effect on economic growth if there is adequate human capital. Some studies have discovered significant effect on economic activity when interacted with the local financial markets such as the financial market variables like savings, finance and private sector credit (Alfaro *et al*., 2004; Adjasi *et al*, 2012). FDI has also been observed to have positive effects on economic growth based on sector characteristics and financial development (Alfaro and Charlton, 2007), sectorial composition that is the sector receiving the FDI (Aykut and Sayek, 2007) and market structure of the country especially when it is well-developed (Alfaro *et al*. 2006).

Asiedu, (2002) concluded that the risk of policy reversal has a more profound impact on FDI and the threat of expropriation leads to under-investment. The optimal level of FDI however decreases as the risk of expropriation increases based on the study of 35 low income countries comprising mostly of SSA countries (Asiedu e*t al.* 2009).

FDI was observed to have a positive effect on economic growth only when human capital has reached a particular threshold (adequate absorptive capability of the advanced technologies) in the host country (Borenzstein *et al.* 1998). This study also concluded that FDI contributes more to growth than domestic investment based on the 69 developing countries studied with the use of Seemingly Unrelated Regression (SUR) technique.

Hansen and Rand (2006) found evidence to support the fact that FDI has an impact on GDP through knowledge transfers and technology spillovers from the 31 developing countries observed. This is in line with theory on the positive impact of FDI. FDI is also known to assists in human capital formation, contributes to international trade integration, helps create a more competitive business environment and enhances enterprise development.

Lensink and Morrisey (2006) introduced measures of volatility of FDI inflows in their study of 87 countries and they found that the effect of volatility of FDI on growth was negative. Their study was done using panel estimates of fixed effects and cross-section instrumental variables (IV) and OLS using lagged values to correct for the problem of endogeneity in their cross-country regression of FDI and volatility.

Adjasi *et al*. (2012) introduced a new measure from the interaction of FDI with financial market variables and concluded that FDI is more productive and only has a significant impact on economic growth with the existence of well-functioning local financial markets from their study on 32 African countries from 1997 to 2008 with the use of panel data estimation. This study corroborates an earlier study of 71countries (20 OECD[7] and 51 non-OECD countries) from 1975 to 1995 by Alfaro *et al*. (2004) that also discovered a positive effect of FDI on growth when financial markets are taken into consideration based on a cross-sectional OLS regression.

The evidence of the benefits of FDI seems to outweigh its demerits from a theoretical point of view as well as evidences empirical studies have advanced based on the type of economy. Notwithstanding the huge gain from FDI, some studies that found negative relationship are Adams, (2009) and Carkovic and Levine, (2002) that explored FDI with the use of both OLS and panel estimations. Adams (2009) established that FDI has a net crowding out effect using panel data estimation in his study of 42 sub-Saharan African countries from 1990 to 2003 and observed FDI was positive only in the OLS estimation. An earlier study by Carkovic and

[7] Organisation for Economic Cooperation and Development (OECD)

Levine, (2002) using both OLS and GMM estimation techniques on a panel of 72 countries, showed that the growth effects of FDI are inconsistent with the assumption of a positive impact.

Most studies on FDI have grouped countries together using panel estimations or cross-sectional techniques. A few studies concentrated on single individual countries such as Chakraborty and Basu, (2002) on India; Kim and Seo, (2003) on Korea; and Akinlo, (2004) on Nigeria. Chakraborty and Basu, (2002) employed the use of Vector Error Correction Model (VECM), Kim and Seo, (2003) used Vector auto-regression (VAR) while Akinlo, (2004) used error correction model (ECM) together with co-integration. Findings from these studies indicate that FDI exerted a positive influence in India while it was insignificant in both the study of Korea and Nigeria depicting non-consensus in the literature.

Evidence of economic growth on domestic investment has also been shown by firm level surveys (Aitken and Harrison, 1999; Djankov and Hoekman, 2000). The evidences are mixed, where a positive effect of foreign investment was observed on total factor productivity growth in Czech Republic (Djankov and Hoekman, 2000), a negative effect of productivity of domestic firms was noted in Venezuela by Aitken and Harrison (1999) due to rise in foreign finance. These studies both noted a large negative spillover effects from foreign investment to domestic firms.

Some have argued that the relationship between FDI and economic growth are bi-directional that is FDI causes economic growth and in turn, economic growth causes FDI. While this can be reasoned to be true as economic growth might spur more FDI where investors want to tap into the resources of a growing economy, then the increase in FDI will bring about more economic growth, this might not be the case in the long-run. A study of 80 countries over a 25 year sample period using Panel VAR model by Choe, (2003), observed that the causality between these two is stronger from growth to FDI, whereas, Hansen and Rand, (2006) discovered, from their study of 31 developing countries over a 30 year sample period using bivariate VAR panel estimation model, that FDI has a long-term effect on GDP while GDP has no long-run impact on the ratio of FDI to GDP variable.

The above reviewed studies show inconsistency in the literature on foreign direct investment and economic growth. These variations in findings could be as a result of different estimation techniques (panel, cross-sectional or time series) and the type of economy studied as the type of FDI may have different impact on different economies.

2.4.2. Foreign portfolio equity investment

Unlike FDI, the studies concentrating exclusively on portfolio equity investment are not as many and they generally indicate both positive and negative effects on economic growth. Among the literature on portfolio equity investment, Demirguc-kunt and Levine (1996); Quinn and Toyoda, (2008); and Agbloyor *et al.*, (2013) have found positive impacts on economic growth while Singh and Weisse (1998) and Durham (2004) found negative impacts. Oney and Halilsoy (2011) however found no strong evidence that portfolio equity contributes to the increase in GDP (Table A2.3).

Studies have shown that both equity and bonds of portfolio investment is very volatile, which means that investors can decide to withdraw their funds where there is political instability or government policies that are not favourable to foreign investors. Based on the work of Kodongo and Ojah (2012), they conclude that the volatility of portfolio flows does not make it contribute more to GDP.

An observation of the estimation technique revealed that most studies adopting a cross-sectional method obtained negative relationship between portfolio equity investment and economic growth (Durham 2004; Portes and Rey, 2005; Oney and Halilsoy, 2011) while those that adopted Panel estimation techniques such as GMM and IV- two stage least square (2SLS) or IV- weighted least square (WLS) found positive relationships (Rousseau and Wachtel, 2000; Edwards, 2001; Agbloyor *et al.*, 2013).

According to Soto (2000), portfolio equity flows have a robust positive link with growth for non-OECD countries. Reisen and Soto (2001) also found that foreign portfolio equity investment (FPEI) exerts a significant positive impact on growth. Bosworth and Collins (1999) however found a positive but statistically insignificant impact of portfolio flows on growth in their study of 58 developing countries. Reisen and Soto (2001) also put forward the notion that equity is preferred to debt instruments for economic growth, which is intended to be determined empirically for countries in SSA in this study.

From the study of Demirguc-kunt and Levine (1996) on 44 countries for the years 1976 and 1993 as well as that of Quinn and Toyoda (2008) on 94 countries from 1950 to 2004, portfolio equity investment was found to point to a positive impact on economic growth. The study conducted by Agbloyor et al., (2013) on data from 42 countries between 1970 and 2007 with the use of instrumental variables (IV) and two stage least squares (2SLS) revealed that more advanced banking system and well-developed stock market leads to more FDI inflows

while higher FDI inflows lead to development of domestic banking system as well as stock market.

On the other hand, Durham (2004) suggests that foreign portfolio equity investment (FPEI) if uncontrolled will have adverse effect in promoting economic growth. In a study of FDI and FPEI on 80 countries, Durham (2004) observed with the use of cross-sectional OLS regression for 1979 to 1998 that they are dependent on the absorptive capacity of host countries, especially with regard to financial or institutional development. Higher level of financial openness leads to equity market development only if a threshold level of legal development has been reached (Chinn and Ito, 2006). This shows that the banking system development is a prerequisite for equity market development.

Again, the study using data from 1983 to 1996 by Singh and Weisse (1998) concluded that for developing countries, stock market development and portfolio capital inflows might not lead to faster long-term economic growth. In addition, the study on 21 high income OECD countries by Oney and Halilsoy (2011) with the use of cross-country OLS regression technique showed that banking and stock market development had no strong evidence of leading to a rise in the GDP per capita growth.

2.4.3. Foreign debt flows

2.4.3.1. Long-term debt flows

Debt flows have been found to contribute more negatively to economic growth than positively from empirical evidence on external debt and economic growth (Fosu, 1996; Ndikumana and Boyce, 2003; Adegbite *et al.*, 2008; Bordo *et al*., 2010; Reinhart and Rogoff, 2010; Akram, 2013). Some studies have found positive effects of foreign debt up to a certain threshold where its effect on economic growth then becomes negative (Fosu, 1996; Checherita and Rother, 2010; Reinhart and Rogoff, 2010; Baum, Checherita-Westphal & Rother, 2013) (Table A2.4).

Various estimation techniques have been employed in studies, for example, the OLS used by Fosu (1996) and Adegbite *et al.* (2008); IV and GMM by Mody and Murshid (2005), Baum *et al.*, (2013) and Akram (2013). Also, studies have adopted either a cross-sectional approach (Ndikumana and Boyce, 2003) or a panel estimation approach (Baum *et al.*, 2013).

Long-term debt was observed to have a positive effect on growth by Baharumshah and Thanoon, (2006) in their study of East Asian economies, but this was the case only in the

short-term, they therefore suggest that long-term debt flow does not promote economic growth in the long-run from their study of 8 Asian countries using a Panel dynamic generalised least square (DGLS) estimation technique. Soto, (2000) in a study of 44 developing countries discovered that portfolio bond flows are not significantly linked to economic growth especially in countries with undercapitalised banking systems and bank related inflows (both short- and long-term).

Mody and Murshid (2005) concentrated on the effect of different capital flows (FDI, commercial bank loans and portfolio flows) on domestic investment which eventually translates to economic growth and observed from 60 developing countries studied using IV estimation and GMM that the effect on domestic investment was only positive in countries with better policies.

The study of 12 Euro area countries by Checherita and Rother (2010) with the use of panel fixed effects and instrumental variables regression analysis revealed a non-linear relationship that shows a higher public debt to GDP ratio is associated on average with lower long-term growth rates. Bordo *et al.* (2010) studied 45 countries with data between 1973 and 2003 using the Probit Model and IV and found that external debt leads to negative growth since large capital inflows relative to GDP is positively associated with currency crisis. Reinhart and Rogoff (2010) however observed that emerging countries have lower thresholds for external debt than advanced countries from their study of 44 countries of which 24 are emerging economies.

More recently, Akram (2013) on four South Asian countries also revealed both external debt and debt servicing negatively affects economic growth and investment. This study employed the use of different estimation techniques such as fixed effects model, Random effects model, Pooled OLS, Dynamic GMM as well as System GMM. In contrast is the study by Baum *et al.* (2013) on 12 Euro area countries for the years 1990 to 2010 using Panel GMM, OLS and IV 2SLS estimation techniques and observed a positive short-run impact of debt on GDP growth but with debt to GDP ratio up to 67%, they saw the impact became nil and insignificant while with very high debt i.e. over 95%, negative impact was observed. This shows a threshold level exists for debt flows.

Various studies on SSA tend to observe a negative impact of foreign debt on economic growth for instance Fosu (1996) studied 29 SSA countries over the period 1970 to 1986 using the OLS estimation technique and observed that debt has been harmful to growth in SSA on

the average. Ndikumana and Boyce (2003) concluded that external borrowing (debt) is positively and significantly related to capital flight. This result was obtained from their study of 30 SSA countries covering the years 1970 to 1996 with the use of cross-sectional regression analysis as well as annual pooled data fixed effects analysis.

A time series analysis by Adegbite *et al.* (2008) of the case of Nigeria employing data from 1975 to 2005, using OLS and generalised least square (GLS) estimations observed that external debt helps growth positively in Nigeria to a certain point where afterwards, its contributions become negative.

2.4.3.2. Short-term debt flows

In a study using 32 emerging market economies for the period 1988 to 1998 by Rodrik and Velasco (1999), it was found that short-term debt flows worsens the economy in times of crisis and therefore concluded that other kinds of capital flows should be encouraged. A previous study by Radelet and Sachs (1998) on 19 emerging market economies from 1994-1997 using a probit regression analysis showed that short-term debts are positively associated with crisis. Frankel and Rose (1996) with a sample of over 100 countries from 1971 to 1992 found that a low ratio of FDI to debt is always linked to high possibility of growth. Eichengreen and Rose (1996) also concluded that banking crisis in emerging markets are strongly associated with adverse external conditions from their study of 105 developing countries using Probit regression analysis for the years 1975 through 1992 (Table A2.5).

Foreign savings in the form of foreign bank lending contribute to growth only if the banking system is well capitalised and if this is not the case, then "good risks will be under-financed and bad risks over-financed" (Reisen and Soto, 2001). Reisen and Soto (2001) also noted that undercapitalised banks tend to engage in excessive risk taking with prospects of increasing their exposure to government liabilities. Baharumshah and Thanoon, (2006) found that short-term capital inflow has negative effect on long-term and short-term growth prospects of an economy and also sensitive to long-term capital inflows. Economies with undercapitalised banking systems, bank-related inflows both short- and long-term are negatively correlated with growth rate (Soto, 2000).

The study carried out earlier by Soto, (2000) also showed FDI and portfolio equity flows to have a robust positive correlation with growth while portfolio bond flows were not significantly linked to economic growth which was corroborated by Aizenman *et al*. (2013). He noted that economies with undercapitalised banking systems, and bank-related inflows -

short-term and long-term debt flows - are negatively correlated with growth rate. Bosworth and Collins (1999) however found bank lending has a strong impact on domestic investment in their study of 58 developing countries during the years from 1979 through 1995. All these emphasise the inconsistencies in the literature regarding foreign capital flows and economic growth.

2.4.4. Foreign aid

Foreign aid, being an official capital flow is a substantial part of capital for developing countries. It forms a greater part of international capital inflow for most countries in sub-Saharan Africa. Most studies on foreign aid have generally found that its effect on economic growth varies based on the countries studied. While a good number of studies have found positive effects of foreign aid on growth (Papanek, 1973; Hansen & Tarp, 2001; Karras, 2006; Asteriou, 2009; Minoiu & Reddy, 2010), mostly with certain conditions, some have also found negative effects (Mosley *et al.*, 1987; Rajan & Subramanian, 2008). This goes to show the level of inconsistency in the available literature.

Most recent studies have stemmed from the work of Burnside and Dollar (2000) with the use of OLS technique on 56 developing countries. They observed that foreign aid only promotes economic growth in countries with good policies (fiscal, monetary and trade policies), however other studies carried out using the same data set (Lu and Ram, 2001; Dalgaard and Hansen, 2001; Hansen and Tarp, 2001; Ram, 2004, Headey, 2008) place less emphasis on the policy environment. Easterly *et al* (2003) however found no robust evidence on an extended sample of that used by Burnside and Dollar (2000). Their study placed a reduced confidence in the findings of Burnside and Dollar that the positive impact of foreign aid on growth in developing countries with sound policies cannot be relied upon.

Other studies conducted reveal that time lags in aid and growth nexus are vital as aid was seen to be less effective in promoting growth in the short-term than in the long-term (Moreira, 2003). Rajan and Subramanian (2008) also observed that the effect from bilateral and multilateral aid was different while they concluded that total aid does not promote growth corroborating both Feeny (2005) and Headey (2008). Although Feeny (2005) on the study of Papua New Guinea found that project aid has positive impact on growth especially during periods of Structural Adjustment Program (SAP) in the country and with the interaction of policies. Headey (2008) also found that the effect of multilateral aid was greater than bilateral

aid during the cold war but after the cold war, bilateral aid exerted a positive effect on growth.

The study of foreign aid by Bulíř and Hamann (2008) found that it did not assist in combating negative income shocks from the 76 countries studied for the period 1975 and 2003. Rajan and Subramanian (2011) also found no robust evidence of foreign aid promoting the economic growth of countries; rather systematic adverse effects on a country's competitiveness were shown in lower relative growth rate of exportable industries. Studies concentrating on single countries such as Islam (1992) on Bangladesh and Mbaku (1993) on Cameroon have found positive effects of aid on growth while Feeny (2005) on Papua New Guinea found no effect of total aid on growth, although they found a positive impact of project aid on growth and also with the interaction of policies.

In SSA, the study carried out by Levy (1988) on 22 of the countries in the region revealed a positive effect on economic growth as well as domestic investment. Using a pooled cross section time series (PCSTS) estimation analysis on a 2-year average period from 1968 to 1982, the results obtained shows that the ratio of Aid to GDP as well as change in Aid to GDP were both positive on GDP growth rate and change in GDP growth rate respectively. Dalgaard, Hansen and Tarp (2004) also studied a combination of SSA and EA countries (65 in all) using OLS and panel regression analysis on a 6 lagged 4-year period averages from 1974 to 1997 and discovered a positive effect on growth. Although, the magnitude of effect observed was dependent on climate related circumstances, the impact was smaller in countries with large fractions of land in the tropics (See Table A2.6 for the summary). Literature does not provide a robust evidence of a positive or negative correlation between foreign aid flows and economic growth of developing countries.

2.4.5. Remittances

Remittances, being a private capital mostly entering the economy directly through individuals have only recently been considered capital that would enhance economic growth and financial development of the receiving economy (Giuliano & Ruiz-Arranz, 2009; Fayissa & Nsiah, 2010; Chowdhury, 2011). Various studies have been carried out on the effect of remittances on economic growth with varying results. Majority of the studies conclude remittances have mostly positive impact on growth (Beine *et al*, 2001; Fajnzylber and Lopez, 2007; Acosta *et al*, 2008; Pradhan *et al.*, 2008; Mundaca, 2009; Chowdhury, 2011; Nyamongo *et al.*, 2012; Lartey, 2013) while some studies have discovered positive effects

based on some conditions present in the economy (Giuliano & Ruiz-Arranz, 2009; Catrineseu *et al*. 2009; Fayissa & Nsiah, 2010). A few studies have however observed negative effects (Amuedo-Dorantes & Pozo, 2004; Buch & Kuckulenz, 2004; Chami *et al.*, 2003; Barajas *et al*., 2009) (See Table A2.7 for summary).

Chami *et al* (2003) was the first to use panel estimation techniques to analyse remittances and suggest that remittances as compared to foreign direct investment and portfolio equity flows have a different effect on growth. These authors worked on a very large sample of data for 113 countries for the years 1970 to 1998, almost 30 years span of data and discovered a negative correlation between GDP growth and remittances. The log of real GDP per capita was used as the dependent variable as against most studies that make use of real GDP per capita growth and the effect of remittances on growth was found to be adverse even after they controlled for the investment to GDP ratio and a lack of an impact on investment was observed. They also used cross-section OLS regression estimation as done in earlier studies. After their study, others have applied panel estimation techniques mostly the GMM estimation techniques proposed by Arellano and Bond (1991) and Blundell and Bond (1998) on annual data mainly for developing countries to determine if remittances truly helps the economy to grow or not.

Buch and Kuckulenz (2004) observed no real relationship (ambiguous link) between remittances and growth. Although the study conducted by Amuedo-Dorantes and Pozo (2004) on 13 Latin American countries for the period between 1979 and 1998 having a larger sample size with the use of fixed effects, OLS and IV estimation techniques showed that remittances have a negative effect on the economy due to the fact that it leads to the appreciation of exchange rate.

A positive impact was however found by Fajnzylber and Lopez, (2007) in their study of remittances with a positive impact on domestic investment since it increases the capital available through accumulated savings. Acosta *et al.* (2008), Giuliano and Ruiz-Arranz (2009), Catrineseu *et al*. (2009), Mundaca (2009), Gupta *et al*. (2009) all observed positive effects of remittances on growth with the use of GMM estimation. This was true for countries with either less developed financial systems in these studies thereby boosting growth through financial development or through the existence of sound policies and institutions (Catrineseu *et al*. 2009). Aggarwal, Demirgüç-Kunt and Peria (2011) found a positive and strong support

for remittances promoting financial development in developing countries from their study on 109 developing countries over the years 1975 and 2007.

Giuliano and Ruiz-Arranz (2009) also found remittances to boost growth, although weak, in countries with less developed financial systems and so serves as a substitute for inefficient or non-existent credit markets through the provision of an alternative way to finance investment and helping overcome liquidity constraints from their study on 73 developing countries (with approximately a third of this as African countries) for the period 1975 to 2002. In addition, they observed a negative relationship between remittances and financial depth, and no impact on growth albeit marginally significant after investment was taken out of the model. Their findings with the use of OLS and system GMM estimation techniques corroborated the work of Fayissa and Nsiah (2010) on SSA.

Gupta *et al*, (2009) found that remittances, which are a steady and sure private transfer, have a direct reducing effect on poverty since the funds go to individuals and can be used judiciously for consumption where needed and promote financial development. A different estimation technique, Co-integration and Vector error correlation model (VECM) was used on annual data from 1971 to 2008 by Chowdhury (2011) where it was discovered that remittances have a significant positive effect in promoting financial development in Bangladesh while financial sector's development is neutral in its effect on the inflow of remittances. Aggarwal *et al.* (2011) also provide strong support for the belief that remittances promote financial development in developing countries.

The study on 36 African countries by Nyamongo *et al*. (2012) observed that remittances complement financial development positively whereas its volatility has a negative impact on growth. This was observed with pooled fixed effect and random effect using OLS and 2SLS instrumental variable for the years 1980 to 2009 in a 3-year period. Pradhan *et al*. (2008) who also carried out their study using fixed- and random-effects on 39 developing countries of annual data from 1980 to 2004 also documented a positive impact on growth. Although Barajas *et al.* (2009) with the use of Panel OLS-IV and fixed effect estimations observed a negative effect of remittances on long-run growth for their study on a sample of 84 countries over a period of 35years.

For sub- Saharan Africa, the study by Fayissa and Nsiah (2010) on 37 SSA countries for the period 1980 to 2004 using GMM, OLS and GLS estimation techniques found that remittances boosts growth in countries where the financial system is less developed through providing an

alternative way to finance investment and helping to overcome liquidity constraints. Aid was found to be negative in their study while FDI was positive but not significant. Their findings corroborated the work of Giuliano and Ruiz-Arranz (2009).

Another study by Ajilore and Ikhide (2013) on 5 selected sub-Saharan African countries reveal that size matters as regards remittances as it further adds to the inconclusiveness of the literature where two of the countries (Cape Verde and Nigeria) had positive and significant effect of migrant remittances on economic growth while negative effect and slightly significant was observed for Lesotho. No evidence of long-run relationship however exists for Senegal and Togo in their study.

One of the latest study carried out on remittances in SSA by Lartey (2013) on 36 countries also showed a positive impact of remittance on economic growth with the use of GMM system estimation. Other positive effects of remittances were noticed on poverty by Adams and Page (2005) on 71 developing countries (of which African countries are less than a third of the sample) over a period of about 20 years with the application of OLS regressions and Instrumental Variables estimates. A positive impact on education and health was found by Acosta *et al.*, (2008) in their study on Latin America, but they observed that it only reaches a few people in the country. Gupta *et al.*, (2009) found that remittances, which are a steady and sure private transfer, have a direct reducing effect on poverty since the funds go to individuals which can be used judiciously for consumption where needed and promote financial development.

From the above, it can be observed that most studies have looked at a single capital flow in relation to economic growth at each time and where studies have attempted to determine the effect of some foreign capital to economic growth; no study has actually observed the relative contribution of each capital flow in relation to the other to growth in SSA. This study fills this gap by comparing all the foreign capital flows to determine which one actually contributes the most to economic growth of sub-Saharan African countries and in particular, the four different countries (South Africa, Nigeria, Kenya and Mauritius) used as case study in this thesis.

2.5. GENERAL SUMMARY ON FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH

It has been established that foreign capital flows may lead to economic growth. While some capital flows have been observed to impact more positively on growth, others may have negative effects.

For instance, foreign direct investment has been argued to have more positive effect on the economic growth of developing countries due to capital accumulation and technology transfer. This form of capital flow has been widely researched and generally believed to contribute positively to the growth of developing countries.

Portfolio equity however is observed to have less positive effect on economic growth in comparison to foreign direct investment as it tends to be more volatile in times of shocks to the economy. This might be a setback for governments as it would not be easy to plan properly and implement projects based on this.

Foreign debt flows have also been argued to have mixed effect on economic growth. While some have observed a threshold level for debt flows after which its increase in the economy starts to contribute negatively and harm the economy in terms of debt repayment and excessive debt overhang; others have found debt flows to be generally bad for the economy.

In the aspect of foreign aid, the debate in the literature shows that it can have a positive impact on the economic growth of developing countries where there are adequate policies put in place and followed while some researchers believe foreign aid to be totally bad for an economy.

The general argument for remittances is evident where remittances could either contribute to the welfare of citizens receiving remittances, used for investment purposes in which case, it might lead to creation of job opportunities.

The next chapter presents the research methodology adopted in this thesis comprising of the theoretical framework, model specification, data sources and econometric procedure followed in the subsequent empirical chapters.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

This chapter presents the research methodology employed in this thesis. It presents the theoretical framework on which this thesis is based and goes further to present the model specification, definition and measurement of variables, as well as data sources. The econometric procedure adopted is also presented in this chapter.

3.2. THEORETICAL FRAMEWORK

This study employs the endogenous growth model – popularly known as the "AK model" – used by Pagano (1993) and its extended form by Bailliu (2000), who introduced international capital flows to capture the relationship between foreign capital flows and economic growth. Here, the aggregate output is a linear function of the aggregate capital stock:

$$Y_t = AK_t \qquad (1)$$

where the above is a typical growth function,

Y_t = aggregate output in time (t);

K_t = capital stock in time (t) which is a combination of both physical and human capital; and A = marginal productivity of capital (MPK).

Certain assumptions are made: (i) the population is constant; and (ii) the economy produces a single good which can either be consumed or invested. If invested, the capital stock depreciates at the rate of δ per period, and then gross investment is given by:

$$I_t = K_{t+1} - (1-\delta)\, K_t \qquad (2)$$

However, the transmission of savings into investment requires financial intermediaries where a proportion of savings $(1-\phi)$ is taken as compensation for services offered. The remaining proportion of savings is equal to investment in the capital market equilibrium state in a closed economy.

$$\phi S_t = I_t \qquad (3)$$

The growth rate of output, g, from equations (1) - (3) without the time indices is given by:

$$g = A(\frac{I}{Y}) - \delta = A\phi s - \delta \quad (4)$$

where s = gross saving rate. Equation (4) is the steady state growth rate of a closed economy.

From the above, it is observed that financial development has an impact on economic growth through financial intermediaries effectively allocating savings for investment. The expertise of banks through increased intermediation results in a reduction of the spread between lending and borrowing rates, which in turn leads to an increase in the proportion of savings invested, thereby leading to an increase in g through the increase in ϕ from equation (4). In addition, financial intermediation allocates capital to more productive investments and channels funds to investments where there is higher marginal productivity of capital, thereby leading to higher growth.

The above framework is extended to integrate foreign capital flows that draw on the work of Bailliu (2000) and Aziakpono (2008; 2013). The closed economy assumption will be relaxed here to allow for free movement of capital into and out of the domestic economy. The above equilibrium conditions can be modified to adjust for the effects of foreign capital flows as follows:

$$\phi^*(S_t + FCF_t) = I_t^* \quad (5)$$

where FCF_t is the net foreign capital flows and * represents open economy. The new steady-state growth rate can be represented as:

$$g^* = A^* \frac{I^*}{Y} - \delta = A^*\phi^* \frac{(S+FCF)}{Y} - \delta = A^*\phi^* s^* - \delta \quad (6)$$

In the absence of any friction, the model suggests an increase in capital flows to the developing country ($FCF_t > 0$), which will help to augment domestic savings ($s^* > s$). In a situation where the foreign capital inflow is invested productively and not consumed, the level of domestic investment in the developing country will rise, which in turn will lead to an increase in economic growth ($g^* > g$).

As highlighted in the previous chapter, the literature is explicit on the way in which the different forms of capital will contribute differently to growth. For instance, foreign direct investment is known to contribute positively to economic growth of countries through capital accumulation and technology transfer while portfolio equity is observed to have less positive effect on economic growth in relation to foreign direct investment as it is usually more

volatile and reversible during periods of economic instability in an economy. Foreign debt flows have been argued to have mixed effect on economic growth and not favourable for the economy after a certain point. Similarly, foreign aid have mixed impact on economic growth with positive effects where adequate policies are put in place and executed. Remittances on the other hand contribute positively to economic growth where it is invested and not consumed.

3.3. MODEL SPECIFICATION AND ANALYTICAL FRAMEWORK

A multivariate vector error correction model is specified following Zhou (2003), Aziakpono (2008), and Belloumi (2009). The model is limited to three variables, thus using a trivariate model to avoid the problem of loss of degree of freedom where X_t = f(Y, CF, CV). The measure of economic growth is the same in all the models denoted as Y. The measure of the five different capital flows, namely debt liability (LNDLS), foreign direct investment (LNFDIS), portfolio equity (LNPES), official development assistance (ODA) and remittances (REM) is alternated and used consistently with a single control variable. The control variables are the log of domestic investment (LNDI), log of exports (LNEXP), log of financial development (LNFD), log of government consumption (LNGC), log of imports (LNIMP), log of inflation (LNINF), log of private credit (LNPC), log of real effective exchange rate (LNREER) and log of openness to trade (LNXM).

By way of an example, in addition to the measure of economic growth, in the model represented as LNYPCK, a capital flow (CF) was included starting with the log of debt liability stock (LNDLS). Each of the control variables is then introduced one at a time until all nine control variables have been used in a model individually. The capital flow is then changed – in this case to the log of foreign direct investment stock (LNFDIS) – and all the control variables are worked through until all the capital flows and control variables have been combined. In this way the effect of each capital flow is robustly determined after controlling for the effects of the other variables.

To compare the results, the effect of each of the measures of capital flows was observed to determine which has the highest and strongest impact on economic growth. However, the effects of the control variables are not the focus of this study.

3.4. DATA SOURCES

3.4.1. Data and methodology

This study employs annual data obtained mostly from the World Bank World Development Indicators (WDI) database and the World Bank's Global Financial Development Database (GFDD). Data on some of the capital flows (CFs), such as the stock of FDI, portfolio equity and debt liabilities, were obtained from the updated Lane and Millesi-Ferretti (LMF) dataset - External Wealth of Nations Mark II: Revised and updated 1970 to 2011. This period was chosen to capture the period of increased capital flows to the selected sub-Saharan African countries and allow a sufficient period for time series analysis.

GDP per capita is used as a proxy for economic growth with five capital flows and nine control variables. The capital flows are all expressed as a percentage of GDP and converted to natural logarithm (LN) form with the exception of remittances, which were not expressed in LN form due to its small scale. All the control variables (CVs) are in their LN form. The capital flows used in the estimation are foreign direct investment liability stock (FDIS), portfolio equity liability stock (PES), debt liability stock (DLS), official development assistance (ODA) as a measure of foreign aid and remittances (REM). The explanatory variables used are the standard growth determinants obtained from the literature which include gross fixed capital formation as a proxy for domestic investment (DI); consumer price index as a measure of inflation (INF) and real effective exchange rate (REER), both of which were included for macro-economic instability; general government final consumption expenditure (GC); exports of goods and services (EXP); imports of goods and services (IMP); openness to trade – the sum of imports and exports – (XM); liquid liabilities (M3) as a percentage of GDP as a measure of financial development (FD); and private credit by deposit money banks to GDP (PC) (see Appendix A3.1 for a comprehensive list and sources of each of the variables).

3.4.2. Variable definition and measurement

3.4.2.1. Measuring foreign capital flows and economic growth

Several measures of foreign capital flows and economic growth have been employed in the literature but for the purpose of this thesis, the measure used for economic growth is discussed below and conforms to most studies on capital flows. The measures of foreign capital flows used in this thesis are five in all where there is available data while the foreign capital flows for each country studied are limited to those having adequate data. Each of these foreign capital flow measures are discussed below.

Economic growth – Real GDP per capita is used as a proxy for economic growth in this study. The choice of real GDP per capita in this study is based on its ability to capture the GDP in relation to the population of the country being observed in addition to its popularity in many research works reviewed (Ndikumana, 2000; Amuedo-Dorantes & Pozo, 2004; Chami et al, 2005; Acosta et al, 2008; Macias & Massa, 2010; Aizenman et al, 2013).

Foreign Direct Investment (FDI) – FDI can be measured as stock or flow. FDI is one of the major sources of foreign capital in the selected sub-Saharan African countries. Since we are dealing with long-run relationship of foreign capital, it is appropriate to use the stock of FDI as we are more concerned with the contribution to growth over a time period. Foreign direct investment liability stock obtained from Lane and Milesi-Ferreti data is therefore used here. This FDI is computed as a ratio of GDP. Several studies have used the stock of FDI as well (Tsai, 1994; Balasubramanyam et al., 1996; Prasad et al., 2007). Most notable studies such as (De Mello, 1997; Choe, 2003; Alfaro et al., 2004; Li & Liu, 2005; Lensink & Morrisey, 2006) however use the net inflow of FDI as percentage of GDP while FDI inflow as a percentage of GDP obtained from UNCTAD was used by Ndikumana & Verick (2008) as well as Driffield & Jones (2013). Foreign direct investment is expected to have a positive effect on economic growth.

Portfolio Equity Stock (PES) – Portfolio equity liability stock obtained from Lane and Milesi-Ferreti data is used for this study. Since the objective of this thesis is to determine the long-run relationship to economic growth in a time series analysis, the use of stock data is more appropriate. As noted above for FDI, PES was computed as a percentage of GDP. Portfolio equity is an increasing foreign capital flows in sub-Saharan Africa and one of the largest capital flows in South Africa. It is expected to contribute positively to economic growth in the selected countries.

Debt Liability Stock (DLS) – Debt liability stock comprising of portfolio debt and other investment stock obtained from Lane and Milesi-Ferreti data is used in this thesis. The use of stock data also follows the reason above for foreign direct investment and portfolio equity. This variable is computed as a percentage of GDP as is done in most literatures (Fosu, 1996; Adegbite et al., 2008; Checherita & Rother, 2010; Akram, 2013). Debt liability stock is expected to have a mixed effect, positive to an extent where it reaches a threshold and thereafter negative impact on economic growth.

Foreign Aid (ODA) – In line with most studies on foreign aid (Hansen & Tarp, 2001; Collier & Dollar, 2002; Easterly, 2003; Moreira, 2003; Islam, 2003), this chapter used net Official Development Assistant (ODA) as a percentage of GDP as a measure of foreign aid obtained from WDI, World Bank. This indicator will be normalized by GDP for the analysis to have a uniform measure of all the capital flow variables. This indicator is expected to have a mixed effect on economic growth.

Remittances (REM) – Remittances comprise of migrant remittances, compensation of employees and personal transfers. Workers' remittances as a percentage of GDP was used in most studies as a measure of remittances (Beine et al. 2001; Iqbal & Sattar, 2005; Mundaca, 2009; Barajas et al. 2009; Catrineseu et al. 2009; Ziesemer, 2012). For the purpose of this study, remittances are taken as a whole; there is no differentiation as to the types of remittances therefore our measure of remittances is obtained from the Global Financial Development Database of the World Bank which is remittances as a percentage of GDP as used by Acosta et al. (2008), Giuliano & Ruiz-Arranz, (2009), Gupta et al. (2009), Chowdhury (2011), Rao & Hassan, (2011), Nyamongo et al. (2012), and Lartey (2013). The effects of remittances on economic growth would depend on the use to which the remittances received are put, if invested, the effect would be positive, but when consumed the effect is most likely to be negative.

3.4.2.2. Control Variables

The control variables employed in this study are the standard variables which have been used in previous studies on capital flows and economic growth. In addition to the five measures of foreign capital flows used in this thesis as discussed above, nine control variables are used as well where data is available for each country. The control variables are domestic investment, inflation, real effective exchange rate, government consumption, exports of goods and services, imports of goods and services, openness to trade (combination of both imports and exports of goods and services), financial development and private credit by deposit money banks to GDP. The measures of these control variables are discussed below.

Domestic investment (DI) – Gross fixed capital formation as a percentage of GDP is used as a proxy for domestic investment in this study. This variable is a measure of domestic investment as recorded in the World Bank database and it has been used by Fosu (1996), Mileva (2008) and Baum et al. (2013). Domestic investment is expected to contribute positively to both economic growth and foreign capital flows.

Inflation (INF) – Consumer price index measured as the increase in general prices of goods and services is used as a proxy for inflation. This measure is commonly used in the literature (Okonkwo et al., 2015) and it is included to capture the possible effects of macroeconomic instability. Inflation is expected to have a mixed effect on foreign capital flows as well as economic growth. Unstable inflation rates signals macroeconomic instability which will have a negative effect on foreign capital flows while a less volatile inflation rate may indicate some form of stability in the economy which may lead to increase in foreign capital flows and invariably positive effect on economic growth. High inflation rates will have a negative impact on economic growth.

Real effective exchange rate (REER) – Real effective exchange rate is included in the analysis to capture the effects of macroeconomic instability. This measure was used by Kodongo and Ojah (2012) and Okonkwo et al. (2015). An unstable or highly volatile exchange rate signals macroeconomic instability in a country and therefore might have a negative impact on economic growth. A strong exchange rate relative to trading partners is expected to cause an increase in the volume of imports which may lead to a fall in economic growth while weak exchange rate is expected to have positive effect on an economy with reduction in value of imports and an increase in exports.

Government consumption (GC) – General government final consumption expenditure is used to represent government consumption. This measure was used by Aizenman et al. (2013) to represent government expenditure. This indicator is expected to have a positive or negative effect on foreign capital flows and economic growth depending on the size of government expenditure and its use.

Export of goods and services (EXP) – The variable is a measure of exports of goods and services as a percentage of GDP. The variable is popularly used in the literature (see for instance Kaminsky and Reinhart, 1996). Exports are expected to have a positive effect on economic growth and foreign capital flows.

Imports of goods and services (IMP) – The variable is a measure of imports of goods and services as a percentage of GDP. This variable has been used by Kaminsky and Reinhart (1996). Imports are expected to have a negative effect on economic growth and foreign capital flows.

Openness to trade (XM) – This is measured as the sum of exports and imports of goods and services as a percentage of GDP. The ratio of this variable to GDP shows the level of openness of a country; a higher ratio indicates a more open economy while a lower ratio indicates a less open economy. This measure of openness has been used widely in studies such as Chinn & Ito (2006), Ndikumana & Verick, (2008), Adams, (2009), and Aizenmann et al. (2013). The level of openness of a country determines how well capital flows into the economy. This variable is expected to have either a positive or a negative effect on both foreign capital flows and economic growth depending on whether it is dominated by exports or imports. If dominated by exports, a positive effect is expected whereas if dominated by imports, a negative effect is expected.

***Financial development (FD)* –** Liquid liabilities (M3) as a percentage of G DP is used in this study as a measure of financial development. This variable has been used by Chowdhury (2011) and Adeniyi et al. (2012). This variable is important in this study as the level of financial development in the selected country is expected to influence the level of capital inflow into the country. A well financially developed country is expected to have a positive effect on foreign capital flows and economic growth.

Private credit (PC) – This is a measure of private credit by deposit money banks to GDP. This is also a measure of financial development used by Oney and Halilsoy (2011) and Adeniyi et al. (2012). This is also expected to have a positive influence on capital inflows to a country and invariably positive effect on economic growth.

A summary of the *a priori* expectations of the control variables on capital flows and economic growth is presented in table 3.1 below.

Table 3.1: A priori expectations of control variables on capital flows and economic growth

Control variables	Expectations on Capital flows
Domestic investment	Positive
Export	Positive
Financial development	Positive
Government consumption	Positive / Negative
Imports	Negative
Inflation	Positive / Negative
Openness to trade	Positive / Negative
Private credit	Positive

Real effective exchange rate	Positive / Negative

Source: Author's compilation

3.5. ECONOMETRIC PROCEDURE

Since the study deals with time series data, the data-generating process of the variables could affect the model. Therefore, the starting point of the analysis is to test the variables for unit root to determine the order of integration. If the variables are not in the same order, they could affect the performance of the model. For instance, if all the variables are stationary at level, the analysis would automatically lend itself to a vector autoregressive (VAR) model. On the other hand, if the series are not stationary at level, i.e. I(0), but stationary at 1st difference, I(1), then the Johansen co-integration technique is applied to determine if they have a long-run relationship.

There are several methods of testing for unit root in the literature. For the purpose of this study, four methods are used, namely three unit root tests (the Augmented Dickey-Fuller (ADF) proposed by Dickey and Fuller (1979); Ng-Perron unit root test by Ng and Perron (1996); and a more advanced method, the Breakpoint unit root test) to ensure robustness of the results. A stationarity test (Kwiatkowski–Phillips–Schmidt–Shin (KPSS, 1992)) was also conducted for comparison and confirmation of the unit root tests and to ensure robustness of the results. One potential problem this could create is where there is conflicting results, but if one of the tests suggests there is unit root, it is used as such. This is essential as the stationarity of a series or otherwise can strongly influence the behaviour and properties of the series in estimation. For instance, the constant re-occurrence of shocks should have a reducing effect on the stationary of a series but this would be infinite for non-stationary series (Brooks, 2008). The use of non-stationary data can lead to spurious regression where two variables trending over time could give high R^2 values with the regression of one variable having an effect on the other despite the fact that the two variables do not have any connection (Brooks, 2008). Again, non-stationary series can lead to invalid standard assumptions for asymptotic analysis, which means the t-ratios produced will not be in line with the normal t-distribution (Brooks, 2008).

The ADF test has certain limitations, such as its lack of ability to distinguish highly persistent stationary processes from non-stationary processes very well and low power against I(0) alternatives that are close to I(1) boundary. The ADF also has less power as deterministic terms are added to the tests such as series that include a constant and even worse with series

including constant and trends. Hence the use of the Ng-Perron, which caters for the limitations of ADF and exhibits substantially higher power than the ADF, tests against very persistent alternatives; and the use of Breakpoint unit root test which could detect a break in the constant or trend (Perron, 1989).

The data-generating process could present a trend, intercept or no trend or intercept in the series. Hence, following Seddighi, Lawler and Katos (2000) the ADF test would be used for each of the series at level to determine whether there is intercept, a stochastic trend or a deterministic trend. If the result shows the series are not stationary at level I(0), but at first difference I(1), then the co-integration test is conducted to determine whether or not a long-run relationship exists among the variables. There are a number of co-integration test methods that can be used, for example the single equation method or the maximum likelihood test proposed by Johansen and Jesulius (1990). The latter was used given that there are more than two variables in the model. The maximum likelihood test is more suitable for the multivariate system since it enables researchers to determine if there is more than one co-integrating relationship. The Johansen maximum likelihood method is preferred over the Engle Granger single equation method as the Engle Granger method has poor small sample properties and has no correction for simultaneous equation bias (IMF, 2003).

If there is a long-run relationship between economic growth and capital flows, the Vector error correction model (VECM) would be used for the analysis. The Johansen co-integration test was done by first determining the lag order of the VAR. The lag selection was set at a maximum of 8 to allow for a wide degree of freedom considering the number of observations used. The sequential modified likelihood ratio (LR) test statistic, final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC) and Hannan-Quinn information criterion (HQ) are relied upon to determine the appropriate lag order. The lag indicated is then tested for serial correlation using the VAR Residual Serial Correlation LM tests. The lag used for the co-integration is one which produced no serial correlation and is tested starting from the minimum lag to the maximum lag indicated by the information criteria to a maximum of 6 lags. The maximum lag is limited to 6 in the co-integration test to reduce loss of degree of freedom. The deterministic test assumption used is based on the result of the ADF unit root test where a variable either has intercept, a stochastic trend or a deterministic trend. According to the E-views 8 manual, deterministic trend assumption of test has 5 assumptions. Assumption 1 is used where the level data have no intercept or trend in the co-integrating equation. Assumption 2 is used where there is intercept but no trend in

the co-integrating equation. Assumption 3 allows for a linear deterministic trend in the data and is used where there is intercept but no trend in the co-integrating equation. Assumption 4 also allows for a linear trend in the data and is used where there are both intercept and trend in the co-integrating equation. Assumption 5 allows for a quadratic deterministic trend in the data and is used where there are both intercept and trend in the co-integrating equation. Since all the models estimated are trivariate models, the assumption is based on the most dominant. In cases where all 3 variables had neither intercept nor trend, stated as none, assumption 2 is used. Where at least one of the variables has intercept but no trend, assumption 3 is used. In cases where one of the 3 variables has a deterministic trend, assumption 4 is used in the estimation (E-views 8 manual).

In order to carry out the Johansen co-integration test, two test methods are usually used. They are the trace statistics and the maximum eigenvalue proposed by Johansen (1988; 1991), with their test statistics as follows respectively:

(i) trace statistics

$$\lambda_{trace}(r) = - \boldsymbol{T} \sum_{i=r+1}^{n} \mathbf{ln}(\mathbf{1} - \hat{\boldsymbol{\lambda}}_{\boldsymbol{i}})$$

(ii) maximum eigenvalue statistics

$$\lambda_{max}(r, r+1) = - \boldsymbol{T}\, \mathbf{ln}(\mathbf{1} - \hat{\boldsymbol{\lambda}}_{\boldsymbol{r+1}})$$

Where $\boldsymbol{T}$ represents the number of observations, **r** is the number of co-integrating vectors under the null hypothesis and $\hat{\boldsymbol{\lambda}}_{\boldsymbol{i}}$ is the i^{th} largest eigenvalue of the Π_i matrix of the equations above (Brooks, 2008: 351). P values were employed to test for co-integration and the null hypothesis of r = 0, r = 1 and r = 2 were tested sequentially from low to high values of **r**. The sequential testing was conducted until the null hypothesis was not rejected for the first time. In a situation where trace statistics and maximum eigenvalue statistics did not agree on the number of co-integrating equations, the decision to rely on either statistic was based on the most reliable from economic reasoning. Where no co-integration was found after testing with lag lengths up to lag 6, the models were not reported.

The existence of a long-run relationship in the model suggests there would be causality at least running from one variable to the other. In other words, the direction of causality would be determined. This is done using the weak exogeneity test in the vector error correction model (VECM) framework. The weak exogeneity test was carried out following Demetriades and Hussein (1996); Arestis and Demetriades (1997) and Chowdhury (2011). Restrictions are placed on each variable within the system to determine which ones are endogenous. In the

models reported, the causality between economic growth and the corresponding capital flow was established.

The VECM estimation technique assumes that all the variables are endogenous until tested for weak exogeneity. Where economic growth or capital flow in the model is found to be the endogenous variable, the model is further explored by normalising on the variable that is endogenous as the dependent variable. A normalisation restriction is imposed to identify the true co-integrating vector (Aziakpono, 2008; Brooks, 2008), and each vector is normalised on the variable for which a clear evidence of error correction is found. If economic growth or capital flow is endogenous, then the model is estimated further; however, if only the control variable is endogenous, then the model is not estimated further as the purpose of this study is not to model the control variables. Economic growth, capital flow or both must be endogenous to determine the causality. Should both be endogenous, it suggests that bi-directional causality exists between the two variables. If economic growth is found to be endogenous, economic growth is then normalised on to find the effect of capital flow on economic growth. Contrastingly, if capital flow is endogenous, then capital flow is normalised on to find the effect of economic growth on capital flow.

The estimation is progressed with the models where either economic growth or the capital flow is endogenous. The slope coefficients are reported after the model has been normalised on the endogenous variable. The error correction term is also reported as well as the adjusted R^2. The model was then tested for serial correlation in the lag length used in the VECM by using the residual serial correlation LM test to ensure no serial correlation of the variables which might distort the results of the estimations. Heteroskedasticity test is also performed for the model to be qualified as a good model.

The next chapter is the empirical chapter on the first country studied, South Africa which follows the econometric procedure stated above and looks at the foreign capital flows described earlier as it relates to South Africa.

CHAPTER FOUR

CAPITAL FLOWS AND ECONOMIC GROWTH IN SOUTH AFRICA[8]

4.1. INTRODUCTION

It has been observed that most countries in Africa have low growth rates in spite of liberalisation efforts to attract foreign capital flows to achieve sustainable economic growth. Prior to 1994, South Africa was excluded from receiving foreign capital flows from the international community due to its highly controversial and widely criticised apartheid policies. South Africa is however, still recovering from almost 50 years of apartheid and has accordingly adopted policies aimed at attracting foreign capital. As a result, the country has experienced an increase in foreign capital flow, with annual economic growth averaging between 2.35% and 5.6% for most years since the transition to democracy, except in 1998 and 2009 after suffering from the effects of the Asian and global financial crises respectively. In the past three years, South Africa has experienced a downward trend in its growth level of 2.22% in 2012, 2.21% in 2013 and 1.52% in 2014 (World Bank WDI, 2015), which may partly be attributed to the effect of capital flows.

Although many studies on capital flows exist, most have concentrated on individual capital flows, with foreign direct investment (FDI) taking centre stage. Research has largely not, however, been directed towards which capital flow specifically contributes most to a particular country. In turn, and because countries are not homogenous, this might mean that the capital flows attracted may not have the required effect like contributing to economic growth as they have different effects on different countries (Aizenman *et al.* 2013). Therefore capital flows should not be generic for all African countries, but tailored to suit the needs and structure of each particular country and its economy. An underlying issue that has not yet been carefully considered is whether all the foreign capital attracted has truly contributed positively to economic growth. It is important to determine this and identify the best form of external capital and attract it to South Africa to improve its economic growth.

Against this backdrop, the main aim of this chapter is to investigate and determine the effect of foreign capital flows (FDI, portfolio equity, debt liabilities and remittances) on the economic growth of South Africa from 1970 to 2012 to determine which particular capital flow benefits the economy most. As much as it is important to know the contribution of each

[8] A paper based on this chapter has been accepted for publication by the *Journal of Economic and Financial Sciences (JEFS).*

foreign capital flow to the economy, it is even more important to know the relative contribution of each one to economic growth such that policymakers in South Africa can know which is best to target.

In the next section, we look at foreign capital flows in the context of South Africa. Section 4.3 reviews existing literature relating to this study. Section 4.4 presents the econometric procedure employed in the analysis, while section 4.5 presents and discusses the results. Section 4.6 summarises the findings and concludes the chapter with some recommendations.

4.2. OVERVIEW OF FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH IN SOUTH AFRICA

Historically, South Africa has gone through different regimes, which may be broadly categorised under apartheid and post-apartheid eras. Prior to 1994, South Africa was excluded from receiving financial support due to the economic sanctions imposed by the international community during the apartheid regime. Following 1994, there was however an increase in foreign capital into the country. It was during the first democratic period that official development assistance (ODA) started entering the country. The trend in capital flows to South Africa such as FDI and portfolio equity has consequently increased since the early 1990s, as illustrated in Figure 4.1.

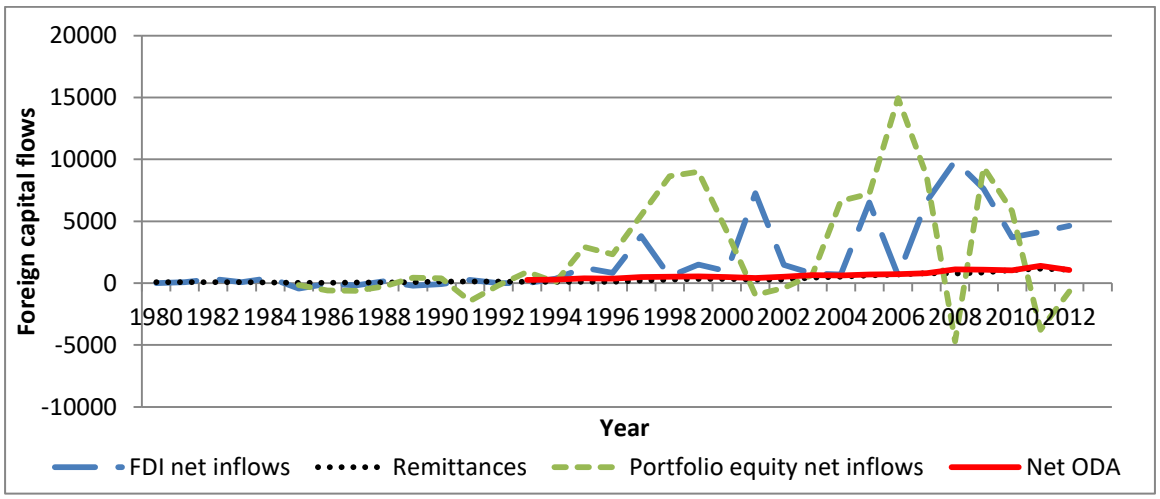


Figure 4.1: Selected Foreign capital flows to South Africa in current US$ million

Source: Author's based on World Bank WDI database 2014

There has been an increase in net inflows of portfolio equity over the years with an increase from about 0.303% of gross domestic product (GDP) in 1993 to about 2.766% of GDP in 1999. This represents the highest flow of portfolio equity received so far in sub-Saharan

Africa (SSA), with South Africa being the largest recipient in the region (World Bank, 2011). Portfolio equity dropped sharply between 2000 and 2002 as a result of the terrorist attack on the World Trade Centre (WTO) in the United States of America (USA) before regaining momentum towards 2002, peaking at around 2.21% of GDP in 2006.

After the 2007 financial crisis in the USA, SSA witnessed a sharp reversal of the inflows of portfolio equity with a loss of about US$5.69billion (about 0.569% of GDP) in 2008. Portfolio equity in the region staged a significant recovery during the latter part of 2008 through to mid-2010, with portfolio equity rebounding from a low of minus US$4.706 billion in 2008 to minus US$0.679 billion in 2012. Africa is witnessing a downward trend due to the effects of the sovereign debt crises in the Eurozone (IMF, 2012). South Africa is the largest recipient of portfolio equity in SSA and therefore is typically affected notably by changes in the level of portfolio equity to the region.

In 2012, FDI flows to South Africa increased to an estimated US$4.643 billion, after declining sharply in 2010 from an estimated US$9.885 billion in 2009 to US$3.693 billion after the global financial crisis. The decrease in portfolio equity in 2008 also coincided with the global financial crisis. This highlights the volatility associated with equity flows during periods of economic shock. The business climate has, however, improved since and favourable economic prospects are attracting investment capital flows into the South African economy. Remittances, on the other hand, have continued to increase in South Africa, reaching a high of US$1.084 billion in 2012, which is an increase of 276% from the US$0.288 billion recorded in 2002 (World Bank, 2014).

Historically, South Africa has had a fairly high and positive economic growth for most years but just before the advent of the first popular democratic regime in 1994, the country experienced negative growth as illustrated in Figure 4.2. South Africa also experienced a low level of growth in 1999 mostly due to the aftermath of the Asian financial crisis where the country witnessed a net outflow of R2.7billion in 1999 (Wesso, 2001). Economic growth picked up in the early 2000s but negative growth was again experienced in 2009, this time mostly as a result of the global financial crisis. The economic growth rate rose in 2010 and 2011, the years immediately following the global financial crisis, but in the last three years, we have seen low growth of 2.22% of GDP in 2012; 2.21% in 2013 and 1.52% in 2014 (World Bank, 2015). This is below the potential growth rate of the economy, particularly seeing that it had been growing at an average rate of over 4% over the previous decade.

The economic growth below the potential of the economy was accounted for by two industries – mining and utilities (electricity, gas and water) (ALMB, 2014). Poor growth performances stemming from these sectors were attributed to domestic conditions such as prolonged and persistent labour unrest (particularly strikes by the mine workers) and the ongoing power crisis (reduction in energy supply and generating capacity) amid persisting challenges brought about by the recent global economic meltdown (RSA, 2014).

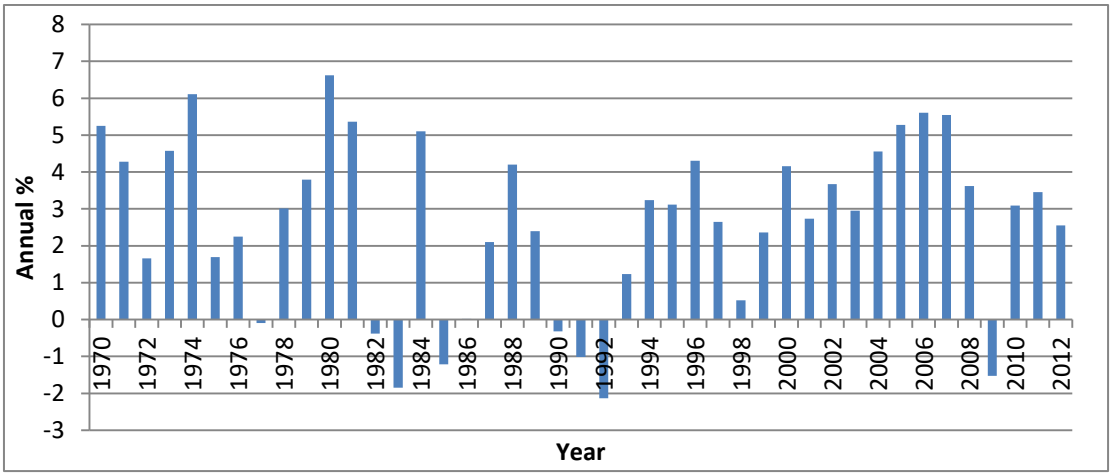


Figure 4.2: GDP growth rate in South Africa (1970-2012)

Source: Author's based on World Bank WDI database 2014

Another way to view the growth performance of the South African economy is based on the three main sectors of the economy (primary, secondary and tertiary). The sectoral composition shows that the tertiary sector's contribution to GDP has been on the increase (from 60.4% of GDP in 1994 to 72.7% in 2013) since the transition to popular democracy (Table 4.1). This might be as a result of increases in foreign capital flows especially foreign direct investment which mainly goes to the tertiary sector of the economy. The other two sectors, however, concomitantly show a dwindling percentage composition to GDP.

Table 4.1: Sectoral composition of GDP at constant 2005 prices

Sectors	1994	2004	2013
Primary	11.90%	10.40%	7.30%
Secondary	27.70%	24.70%	20.00%
Tertiary	60.40%	64.90%	72.70%

Source: Du Plessis & Smit (2006) and ALMB (2014)

In addition, the recent withdrawal of funds from the economy, most notably in the form of disinvestments in portfolio equity, bonds, foreign direct investment (FDI) and official development assistance (ODA), may have resulted in the low level of economic growth and are consistent with rapid drops in the stock market as investors withdrew $6.1 billion from South Africa in 2008 (Macias & Massa, 2010). The average official exchange rate has been rising significantly in recent years. The rand was initially stronger than the dollar in the 1970s with the average official exchange rate less than a dollar until 1981. As at 1994, the rate stood at R3.55 to the dollar and has been depreciating ever since, partly due to the effects of new policies on capital flows and trade with the international community.

The depreciation in the exchange rate of the rand in 2013, dropping to then-low levels of R11 to US$1 towards the end of the year and the beginning of 2014, may also be attributed to the drop in the stock market and capital outflows. According to World Bank (2015), the record of R10.85 to US$1 in 2014 was the highest up till then but the record for 2015 has surpassed this value. The rand reached an all-time low of R16.84 to the dollar in January, 2016 (Trading economics, 2016) and it may still be on the verge of further depreciation. The present low trading value of the rand can be linked to an increase in the country's current account deficit, low savings, low GDP growth and ongoing developments with its main trading partners, such as the recent devaluation of the Chinese yuan. Again, the abrupt removal of the Minister of Finance (Nhlanhla Nene) in December 2015 might also have contributed to the present depreciation of the rand to the dollar as there were mixed views about his removal. The xenophobic attacks in South Africa might also be a deterrent to investors as this will send signals of insecurity to the outside community. This might also contribute to a reduction in economic growth.

Considering the low level of economic growth in the country and the present challenges of poverty, inequality and unemployment, there is a need to embark on various measures to improve economic growth to combat these prevailing challenges. This issue was highlighted by the South African President during the first state of the nation address of the fifth democratic administration delivered on 17 June, 2014. He stated that the most effective weapon in the campaign against poverty is to achieve faster economic growth through the creation of more employment opportunities in the economy. He further stated that an annual growth rate of 5% is the target from 2019 therefore there is the need to adopt feasible measures and actions to spur the economy to higher growth rates.

If South Africa is expected to meet the target of 5% GDP growth rate as at 2019, there is a need to focus on the capital flow that contributes the most to the economy. For a country to achieve an increase in productivity and output, theoretically capital is an important tool. A decrease in domestic savings has been observed from 1980 from 37.89% of GDP to 16.36% in 2012. This reflects the need for foreign capital to augment domestic savings to sustain and increase investment.

A preliminary investigation using simple correlation shows capital flows have low correlation with growth before the popular democratic regime but relatively high thereafter except for portfolio equity (Table 4.2). The decade-by-decade analysis shows no record of debt liabilities and ODA before the 1990s and all the capital flows reflect a low correlation to GDP per capita in the 1990s. Portfolio equity showed a very low correlation with GDP per capita over the entire period while ODA, remittances and FDI were the most correlated with GDP per capita, especially since the move to popular democracy. With this background, the empirical evidence on South Africa would be reviewed in the next section.

Table 4.2: Correlation of foreign capital flows and GDP per capita in SA (1970 – 2014)

	Foreign direct investment	Portfolio Equity	Debt Liability	Remittances	Official development assistance
1970 – 1979	-0.1900	-	-	0.7442	-
1980 – 1989	0.4846	0.4597	-	0.6473	-
1990 – 1999	0.0650	-0.1307	0.2994	0.0201	0.5807
2000 – 2009	0.5676	0.3203	0.4128	0.9701	0.9022
2010 – 2014	0.7479	-0.4060	0.1964	-0.5646	0.4560
Total	0.5680	0.0268	0.5235	0.7078	0.9353
1970 – 1993	0.0860	0.0416	-	-0.2118	-
1994 – 2014	0.6619	-0.0970	0.1039	0.9583	0.9301

Source: Author's calculations from World Bank WDI 2015

4.3. EMPIRICAL EVIDENCE ON SOUTH AFRICA

The ongoing debate on the role of foreign capital flows in economic growth has attracted several empirical studies that grapple with this issue. Numerous studies on foreign capital flows used cross-sectional and panel analysis as discussed in Section 2.4 of Chapter 2, which does not allow for country specific differences in the estimation. Therefore, in this section, we concentrate on the few studies on South Africa that used time series analysis that cater for the flaws of the above-mentioned estimation analyses.

The study by Wesso (2001) on net capital flows and the real GDP growth rate using error correction model technique and unrestricted VAR on quarterly data from 1991:1 to 2000:4 revealed a negative relationship between net capital flows and relatively high domestic inflation rates, but a positive effect on economic growth in the long-run.

Tswamuno, Pardee and Wunnava (2007) also observed the relationship between real per capita GDP and capital account liberalisation using the ordinary least square (OLS) estimation technique on quarterly data from 1975:3 to 2005:1. They found that while post-liberalisation foreign portfolio investment (FPI) had no positive effect on economic growth, post-liberalisation stock market turnover had a negative effect on economic growth in South Africa.

The study by Fedderke and Romm (2006) looked at the growth impact and determinants of FDI into South Africa. They found that FDI is capital intensive and has a positive impact on economic growth using Johansen–VECM specification on annual data from 1960 to 2002.

Dzangare (2011) also investigated the relationship between private capital flows (FDI, bank lending, equity and bonds) on real GDP growth using quarterly data from 1989:4 to 2009:4. A positive relationship was observed between private capital flows and real GDP growth, also adopting the Johansen co-integration technique.

A closely related work is Aziakpono (2008), which is a comprehensive study of the effect of financial integration and financial development on economic growth for Southern African Customs Union (SACU) countries using capital flows as measures of financial integration. The study explored the relationship between FDI, debt liabilities and portfolio asset liabilities, and the economic performance of South Africa from 1970 to 2004 using the Johansen co-integration and VECM estimation. A statistically significant and positive relationship was observed mostly for FDI and portfolio equity, while debt liabilities showed a robust evidence of a negative and statistically significant relationship with economic performance in South Africa.

The data employed in the study by Aziakpono (2008) included data up to 2004 but not beyond, whereas this chapter covers more capital flows over an extended period until 2012, thus covering the period of the global financial crisis which might have an impact on the capital flows to the country. This chapter seeks to address issues not considered in previous studies on South Africa and, more importantly, to show the relative contribution of capital

flows to economic growth such that South Africa can know which specific capital is best to attract through tailored policies. The next section provides the empirical analysis which specifies the model and highlights the econometric procedure followed.

4.4. EMPIRICAL ANALYSIS

4.4.1. Model specification

The model specification followed in this chapter is as presented in section 3.3 of chapter 3 which is a multivariate vector error correction model limited to three variables, thus using a trivariate model to avoid the problem of loss of degree of freedom where X_t = f(Y, CF, CV). The measure of economic growth is the same in all the models denoted as Y. CF represents the measure of the four different capital flows used in this chapter, namely debt liability (LNDLS), foreign direct investment (LNFDIS), portfolio equity (LNPES), official development assistance (ODA) and remittances (REM) which are alternated and used at a time with a single control variable. The control variables (CV) are the log of domestic investment (LNDI), log of exports (LNEXP), log of financial development (LNFD), log of government consumption (LNGC), log of imports (LNIMP), log of inflation (LNINF), log of private credit (LNPC), log of real effective exchange rate (LNREER) and log of openness to trade (LNXM).

4.4.2. Data and methodology

The data employed in this chapter are as described in section 3.4 of chapter 3. However, official development assistance (ODA) was not included in the analysis for this chapter as there was no sufficient number of observations to conduct a meaningful and reliable time series analyses, since South Africa did not start receiving ODA until the post-apartheid era in the early 1990s.

Real GDP per capita is used as a proxy for economic growth with four capital flows and nine control variables. The capital flows are all expressed as a percentage of GDP and converted to natural logarithm (LN) form with the exception of remittances, which were not expressed in LN form due to its small scale. All the control variables (CVs) are in their LN form. The capital flows used in the estimation are foreign direct investment liability stock (FDIS), portfolio equity liability stock (PES), debt liability stock (DLS) and remittances (REM). The explanatory variables used are the standard growth determinants obtained from the literature as discussed in chapter 3.

4.4.3. Analytical framework

The analytical framework followed in this chapter is as presented in section 3.3 of chapter 3. In addition to the analytical framework specified in chapter 3, a dummy variable was introduced to all the models in the analysis. The dummy variable (DUMA) was used to capture the possible effect of the end of apartheid regime in the country on foreign capital inflows. A value of 1 was assigned for the post-apartheid period, after the abolition of apartheid rule in South Africa (1995 – 2012) and a value of 0 was assigned for the period during the apartheid rule in our data (1970 – 1994). It is expected that after the abolition of apartheid regime, the country would be more attractive to foreign investors.

To compare the result, the effect of each of the measures of capital flows was observed to determine which has the most and strongest effect on economic growth after controlling for the effects of the control variables.

4.4.5. Econometric procedure

The econometric procedure followed is as set out and well detailed in section 3.5 of chapter 3. The dummy variable capturing the effects of apartheid on foreign capital flows was then introduced and estimated accordingly. The error correction term was reported as well as the adjusted R^2. The model was then tested for serial correlation in the lag length used in the VECM by using the residual serial correlation LM test to ensure no serial correlation of the variables which might distort the results of the estimations. A heteroscedasticity test was also performed for the model to be qualified as a good model.

4.5. EMPIRICAL RESULTS

The analysis started with unit root tests. The variables were tested for unit root and stationarity. The ADF unit root test results are reported in Table 4.3. It was observed that four variables (debt liability, financial development, inflation and real effective exchange rate) were stationary at levels I(0). All the other variables used in the estimation were stationary at 1^{st} difference, I(1).

Table 4.3: ADF Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	None	1	0.815	0	-4.002***	I(1)
LNDLS	Intercept	1	-3.605***	0	-4.940***	I(0)
LNFDIS	None	0	-0.247	0	-6.937***	I(1)
LNPES	Trend	2	-2.100	1	-6.691***	I(1)
REM	None	1	0.295	0	-3.838***	I(1)

LNDI	None	1	-0.598	0	-4.197***	I(1)
LNEXP	Intercept	0	-2.654*	0	-5.695***	I(1)
LNFD	Trend	1	-4.088**	4	-5.929***	I(0)
LNGC	None	0	1.654	0	-5.258***	I(1)
LNIMP	None	0	0.208	0	-6.359***	I(1)
LNINF	Intercept & Trend	5	-3.687**	1	-3.551**	I(0)
LNPC	Trend	1	-3.518*	4	-5.193***	I(1)
LNREER	Trend	1	-3.596**	1	-4.692***	I(0)
LNXM	None	0	0.352	0	-5.946***	I(1)

Notes: *, **, and *** indicates rejection of the null hypothesis of no unit root at 10%, 5% and 1% level of significance respectively.

Source: Estimated and compiled by author

The alternative test of no unit root, KPSS stationarity test and Ng-Perron unit root test were also conducted to ensure the robustness of the results (See Appendix Table A4.2 and A4.3). This was done to confirm the rejection of the null hypothesis of no unit root and ensure a variable has not been rejected for unit root wrongly. KPSS indicated debt liabilities and inflation as stationary at level, I(0) while Ng-Perron indicated financial development to be stationary at level. The breakpoint unit root test was also done and the results reported in Table 4.4. Financial development and inflation also confirm stationarity at level I(0) for breakpoint unit root test. From this, the Johansen co-integration test can be performed since most variables are integrated of order one, i.e. I(1). I(0) variables were also included in the analysis as it has been shown from studies that they might be important in economic theory (Harris, 1995).

Table 4.4: Breakpoint Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	Intercept	1	-2.309	0	-4.821**	I(1)
LNDLS	Intercept	1	-4.419*	0	-5.207***	I(1)
LNFDIS	Intercept	0	-2.829	0	-10.392***	I(1)
LNPES	Intercept & Trend	4	-4.021	1	-7.973***	I(1)
REM	Intercept	1	-6.412***	1	-4.617**	I(0)
LNDI	Intercept	1	-3.378	1	-5.523***	I(1)
LNEXP	Intercept	0	-2.890	0	-6.012***	I(1)
LNFD	Intercept & Trend	3	-5.350***	4	-6.788***	I(0)
LNGC	Intercept	0	-2.360	0	-5.635***	I(1)
LNIMP	Intercept	0	-2.656	0	-6.940***	I(1)
LNINF	Intercept & Trend	5	-5.028**	1	-4.558	I(0)
LNPC	Intercept & Trend	3	-3.799	4	5.953***	I(1)
LNREER	Intercept & Trend	1	-3.873	1	-5.501***	I(1)

LNXM	Intercept	0	-2.601	0	-6.278***	I(1)

Notes: *, **, and *** indicates rejection of the null hypothesis of no unit root at 10%, 5% and 1% level of significance respectively.

Source: Computed and compiled by author

Test of deterministic trend assumption was performed to determine if to include intercept or trend in the model. The result is reported in Table 4.5 where four variables were found to be trend stationary; two models had intercept with one model having both intercept and trend. The remaining seven variables exhibited neither trend nor intercept.

Table 4.5: Test of deterministic trend assumption

Variables	Intercept only	Stochastic trend	Deterministic trend	Decision rule
LnYPCK	0.694	0.862	1.288	None
LnDLS	3.607***	3.564**	-0.202	Intercept
LnFDIS	1.380	1.024	1.371	None
LnPES	0.244	-0.037	3.105**	Trend
REM	1.248	0.161	2.217	None
LnDI	1.721	1.782	-0.909	None
LnEXP	2.671**	2.620	-0.215	Intercept
LnFD	1.760	4.080***	-3.553**	Trend
LnGC	1.626	2.281	1.619	None
LnIMP	1.786	1.910	1.058	None
LnINF	3.230***	3.250***	3.167***	Intercept & Trend
LnPC	1.167	3.518**	3.289**	Trend
LnREER	1.555	3.595**	-3.046**	Trend
LnXM	1.991	2.019	0.482	None

Source: Computed and compiled by author

Johansen co-integration test was performed after the lag length selection. A total of 36 models were estimated, 9 for each of the capital flows. Most of the models were found to have at least one co-integrating relation, which shows that a long-run relationship exists between them. Of all the capital flows, it was only portfolio equity model with financial development and private credit as control variables that did not indicate any co-integrating relation and was therefore not reported. All the other measures of capital flows produced co-integrating relations in the models and were accordingly reported (Table 4.6, see table A4.4 in the appendix for the full test result).

Table 4.6: Summary of Johansen Co-integration test results: VAR = {Y, CF, CV}: South Africa

CF Variables	DLS		FDI		PES		REM	
CV	Trace	Max	Trace	Max	Trace	Max	Trace	Max
LNDI	0	1	3	1	1	1	1	1
LNEXP	0	1	1	0	1	0	1	1
LNFD	1	1	2	1	X	X	2	1
LNGC	1	1	1	1	1	0	1	1
LNIMP	1	1	1	1	1	1	1	1
LNINF	1	1	1	1	2	1	2	1
LNPC	1	1	1	0	X	X	3	1
LNREER	1	1	1	1	1	1	2	1
LNXM	1	0	1	0	1	0	0	1

Notes: 0 represents no co-integrating relation; 1, 2 and 3 represents one, two and three co-integrating relations respectively; while X represents model with no report due to poor residual diagnostic test result.

Source: Computed and compiled by author

The results of the weak exogeneity test revealed that the causality between economic growth and capital flow in South Africa is not bi-directional, except for remittances, with three models where the control variables (domestic investment, government consumption and inflation) were included. Foreign direct investment showed effect of causality on economic growth in South Africa significantly more than the effect of economic growth on foreign direct investment. The weak exogeneity test results are reported in table 4.7.

Table 4.7: Weak Exogeneity test results

								Causality between Y and CF		
Variables					Weak Exogeneity test			Null Hypothesis		
CF	CV	Obs	K	A	Y	CF	CV	Y↔CF	Y→CF	Y←CF
	Debt Stock									
LNDLS	LNDI	41	3	3	0.13[0.72]	8.06[0.00]	1.78[0.18]	No	Yes	No
	LNEXP	41	4	3	0.03[0.86]	4.48[0.03]	0.78[0.38]	No	Yes	No
	LNGC	41	4	3	0.09[0.76]	10.64[0.00]	1.72[0.19]	No	Yes	No
	LNINF	41	2	4	2.44[0.12]	2.90[0.09]	1.38[0.24]	No	Yes	No
	LNREER	36	2	4	1.87[0.17]	11.76[0.00]	3.58[0.06]	No	Yes	No
	Foreign direct investment stock									
LNFDIS	LNEXP	41	3	2	2.78[0.096]	0.10[0.75]	6.85[0.01]	No	No	Yes
	LNGC	41	2	2	9.43[0.00]	0.18[0.67]	0.27[0.61]	No	No	Yes
	LNIMP	41	2	2	2.37[0.12]	7.17[0.01]	15.06[0.00]	No	Yes	No
	LNINF	41	2	4	3.74[0.05]	1.07[0.30]	0.33[0.57]	No	No	Yes

	LNPC	41	3	4	6.11[0.01]	0.30[0.58]	16.75[0.00]	No	No	Yes
	LNREER	36	3	4	2.78[0.09]	0.28[0.60]	0.46[0.50]	No	No	Yes
	Portfolio equity stock									
LNPES	LNDI	41	2	3	0.21[0.65]	6.90[0.01]	3.42[0.06]	No	Yes	No
	LNGC	41	3	4	0.00[0.98]	3.20[0.07]	6.10[0.01]	No	Yes	No
	LNINF	41	5	4	3.38[0.07]	0.07[0.80]	12.3[0.00]	No	No	Yes
	Remittances									
REM	LNDI	41	3	2	3.33[0.07]	3.64[0.06]	1.35[0.25]	Yes	Yes	Yes
	LNEXP	41	4	3	6.76[0.01]	2.41[0.12]	1.18[0.28]	No	No	Yes
	LNGC	41	2	2	6.47[0.01]	2.71[0.09]	0.84[0.36	Yes	Yes	Yes
	LNIMP	41	4	2	3.60[0.06]	1.86[0.17]	0.00[0.95]	No	No	Yes
	LNINF	41	2	4	3.64[0.06]	2.91[0.09]	0.14[0.71]	Yes	Yes	Yes
	LNPC	41	4	4	2.31[0.13]	8.35[0.00]	3.43[0.06]	No	Yes	No
	LNXM	41	3	2	8.34[0.00]	2.55[0.11]	0.01[0.94]	No	No	Yes

Notes: The variables are as defined in Table 1 of the appendix. Y↔CF = bi-causality between Y and CF; Y→CF = causality from Y to CF; while Y←CF = causality from CF to Y; The values in parenthesis [ ] represents probabilities. Where a 'Yes' is indicated in the first column, this signifies a bi-causality between Y and CF, otherwise, 'No' is indicated where the causality is not bi-directional. The 2nd column represents causality from Y to CF meaning that Y influences the corresponding CF while the 3rd column represents causality from CF to Y indicating that the corresponding capital flow is responsible for Y.

Source: Computed and compiled by author

In all the models reported, causality between economic growth and the corresponding capital flow was established. For debt liability, the results suggest that causality runs from economic growth in all the five models reported, there was no case of causality running from debt liability to economic growth. This indicates that economic growth causes debt liability. Foreign direct investment, on the other hand, suggests the opposite where causality runs generally from foreign direct investment to economic growth in five of the models, compared to one model that showed causality running from economic growth to foreign direct investment. For portfolio equity, the results show that portfolio equity causes economic growth in only one model while two models show causality running from economic growth to portfolio equity. Finally, with regard to remittances, the overall evidence seems to suggest that the causality between economic growth and remittances is mixed as three of the models indicated bi-directional causality, three indicated causality running from economic growth to remittances and only one model indicated causality running from remittances to economic growth.

So far the evidence shows that a long-run and causal relationship between economic growth and capital flows exist in South Africa. The magnitude and sign of the causal effect was further explored. The slope coefficients of the estimated models are recorded in Table 4.8. The LM statistics from the serial correlation test and the probability are also reported. Where

the probability was above the 10% significance level, which signifies that we cannot reject the null hypothesis of no serial correlation at lag order, then it was taken that the model had passed the serial correlation test and heteroskedasticity test was performed. Here, the chi-square and probability were reported and the model had to pass this test with a probability above 10% as well for it to be qualified as a good model. The results reported in Table 4.8 are the models that passed all these tests.

From the results, it can be observed that debt liability was not statistically significant in determining economic growth. Foreign direct investment and remittances, on the other hand, showed a positive relationship with economic growth in South Africa. The coefficients also showed high statistical significance at the 1% level.

The first panel from Table 4.8 presents the results of the debt liability estimation, which shows that economic growth influence debt flows in South Africa but is statistically insignificant for all the models. The results are however mixed as two of the models show a positive relationship and the other two show negative relationship. The degree of elasticity ranges from minus 0.10 to 0.20 and the speed of adjustment to long-run equilibrium changes ranges from minus 0.24 to minus 0.54, with most of the model concentrated towards the upper part of the range. This indicates a relatively moderate speed of adjustment. The explanatory power of the model was quite moderate with the least value being almost 30%. The models reported passed all the residual diagnostic tests, thus confirming the validity of the models.

With the introduction of the dummy variable for apartheid (DUMA), the dummy variable was significant in two of the four models reported. Economic growth became significant where two of the control variables (exports and real effective exchange rate) were included in the estimation as against the insignificant record reported in the initial estimation. While economic growth became significant for exports, the ECM term was noted to be insignificant. All the control variables reported were however significant.

Table 4.8: Long-run parameters: Slope Coefficients for South Africa

Y = LNYPCK						Slope Coefficients						
CF	CV	Obs	K	A	Intercept	Y	CF	CV	ECM term	Adjusted R^2	S.Cor VECM	Het
	Debt stock											
LNDLS	LNDI	41	3	3	3.521	-0.07(-0.09)		0.07(0.29)	-0.42(-3.10)***	0.27	1.48[0.997]	89.69[0.32]
	LNEXP	41	4	3	0.805	0.20(0.21)		0.19(0.32)	-0.47(-2.55)**	0.33	3.59[0.94]	125.69[0.34]
	LNGC	41	4	3	2.819	0.15(0.24)		-0.34(-1.35)	-0.54(-3.95)***	0.42	8.69[0.47]	112.43[0.68]
	LNREER	36	2	4	-11.114	-0.10(-0.11)		2.98(4.85)***	-0.24(-6.04)***	0.55	8.17[0.52]	54.76[0.23]
	Foreign direct investment stock											
LNFDIS	LNEXP	41	3	2	17.212		0.98(4.00)***	-3.46(-3.21)***	-0.02(-2.14)**	0.23	2.96[0.97]	81.86[0.55]
	LNGC	41	2	2	6.397		0.33(4.58)***	0.43(1.71)*	-0.09(-4.40)***	0.48	13.35[0.15]	60.09[0.11]
	LNINF	41	2	4	9.173		-0.09(-4.42)***	-0.57(-10.46)***	-0.47(-2.87)***	0.42	9.24[0.42]	48.48[0.45]
	LNPC	41	3	4	2.931		0.26(3.10)***	1.26(2.29)**	-0.05(-2.71)***	0.34	3.84[0.92]	91.59[0.27]
	LNREER	36	3	4	9.544		0.19(3.86)***	-0.32(-1.39)	-0.13(-3.67)***	0.48	4.03[0.91]	84.55[0.46]
	Portfolio equity stock											
LNPES	LNDI	41	2	3	41.388	-2.88(-0.60)		-4.91(-3.30)***	-0.09(-2.60)**	0.19	13.68[0.13]	51.93[0.32]
	LNGC	41	3	4	2.814	3.64(1.92)*		-12.25(-6.35)***	0.21(2.54)**	0.19	4.14[0.90]	81.60[0.55]
	LNINF	41	5	4	-1.990		3.73(7.26)***	5.90(6.82)***	0.02(2.21)**	0.56	7.34[0.60]	170.60[0.20]
	Remittances											
REM	LNEXP	41	4	3	5.827		0.98(3.22)***	0.77(3.79)***	-0.12(-2.68)**	0.24	2.92[0.97]	111.22[0.70]
	LNGC	41	2	2	-11.973		-21.50(-4.09)***	7.84(2.60)**	0.01(3.00)***	0.34	12.17[0.20]	59.65[0.12]
					-0.557	-0.05(-0.17)		0.36(3.07)***	-0.07(-1.78)*	0.27	12.17[0.20]	59.65[0.12]
	LNIMP	41	4	2	6.347		0.77(2.77)***	0.66(3.63)***	-0.12(-2.64)**	0.33	3.36[0.95]	114.57[0.62]
	LNINF	41	2	4	8.876		-0.98(-4.55)***	-0.51(-9.36)***	-0.30(-2.99)***	0.48	4.49[0.88]	40.51[0.77]
					9.035	-1.02(-3.99)***		-0.52(-5.34)***	-0.28(-2.75)***	0.33	4.49[0.88]	40.51[0.77]
	LNPC	41	4	4	-0.246	0.02(0.25)		0.02(0.27)	-0.36(-3.83)***	0.41	7.13[0.62]	119.98[0.48]
	LNXM	41	3	2	5.780		0.66(3.13)***	0.68(4.68)***	-0.18(-3.10)***	0.30	3.22[0.95]	119.17[0.50]

Notes: *, **, and *** denotes significance at 10%, 5% and 1% respectively. The values in parenthesis [ ] represents probabilities while the values in ( ) represents t-values.
Source: Computed and compiled by author.

The results for portfolio equity stock suggest portfolio equity leads to economic growth in one model while two models show that economic growth causes portfolio equity. Although out of the two models normalised on portfolio equity that passed all the tests, one model with the control variable government consumption showed a positive relationship between portfolio equity and economic growth and was statistically significant (although only at the 10% level), whereas the other model with domestic investment as control variable showed a negative relationship and statistically insignificant. The only model normalised on economic growth revealed a positive relationship and statistically significant. This implies portfolio equity exhibits a positive relationship with economic growth in South Africa. The elasticity for the insignificant model was minus 2.88 while those of the significant and positive models were 3.64 and 3.73. The speed of adjustment as indicated from the error correction term (ECM term) ranged from minus 0.02 to 0.21. The adjusted R^2 for the two models normalised on portfolio equity were barely 20%, indicating low explanatory power of the models. However, that normalised on economic growth revealed high explanatory power at 56%.

With the introduction of the dummy variable for apartheid (DUMA), it was observed that the dummy variable for the two models normalised on portfolio equity reported were both significant although only the government consumption control variable was significant (Table A4.5). This shows the apartheid regime influenced the inflow of portfolio equity in South Africa.

Remittances, on the other hand, show evidence of a mixed effect of capital flow on economic growth (albeit more positive) in South Africa. Out of the six variables reported, four indicate that remittances have a positive relationship with economic growth while the remaining two (government consumption and inflation) indicated a negative relationship. Five models were normalised on economic growth and of these, three showed a positive relationship and statistically significant at the 1% level with very high elasticities ranging from 0.66 to 0.98, while the other two show negative relationship. The error correction term ranges from 1% to 36%, which shows the speed of adjustment to any changes in equilibrium to be quite low. The last model indicates a negative relationship between remittances and economic growth with degree of elasticity of minus 21.50 and a 1% speed of adjustment to long-run equilibrium. This means there are hardly any changes to economic growth with a shift in equilibrium.

Foreign direct investment showed a positive effect and significant relationship at the 1% significance level with economic growth, with elasticity ranging between 0.19 and 0.98. The speed of adjustment ranges between minus 0.02 and 0.13, which is low, except for inflation showing a negative relationship with ECM term of 47%. This shows that any changes to the long-run equilibrium would not bring about significant correction back to equilibrium in a short term.

The results thus confirm the economic theory that FDI contributes positively to economic growth. This is also consistent with the results of most empirical studies on FDI and remittances, namely that they exert more of a positive impact on economic growth than a negative one (Reisen & Soto, 2001; Driffield & Jones, 2013). The chapter further shows that debt liabilities and portfolio equity were not significant in explaining economic growth in South Africa. While the level of portfolio equity in South Africa has been higher than that of FDI over the years, it does not contribute as significantly to economic growth as FDI does. This accordingly provides evidence to suggest that South Africa cannot continue focusing attracting the wrong type of capital flows. This result contradicts the findings of Dzangare (2011), who found a positive effect of these capitals flows on economic growth in South Africa. This discrepancy in findings may be associated with the model of Dzangare employing a large number of variables that produced four co-integrating equations. However, this was not further explored in his study to identify the equations and normalise on the endogenous variable in the model.

4.6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The chapter explored the relative contribution of the major capital flows (foreign direct investment, foreign portfolio investment, debt flows and remittances) in South Africa to economic growth. The causal effect between these capital flows and economic growth was established. Furthermore, the magnitude and sign of the long-run relationship between the capital flows and economic growth was investigated to determine which capital flow contributes most to the economy.

The results obtained from the analysis revealed a unidirectional causality running from economic growth both to debt liabilities and portfolio equity in South Africa whereas the opposite was the case for foreign direct investment. The causality between economic growth and remittances was however mixed as both bi-directional and unidirectional causality were observed.

The estimation results revealed debt liability stock and portfolio equity stock were not significant in determining economic growth in South Africa. From the analysis, foreign direct investment and remittances showed a positive relationship with economic growth. Most of the coefficients were also highly significant (i.e. at the 1% significance level). Thus, foreign direct investment and remittances contributed more to economic growth than debt liability stock and portfolio equity stock in South Africa during the period of the study.

If policies are to be aimed at stimulating growth in the economy and attracting foreign capital, the South African government is advised to focus on attracting more foreign direct investment and remittances through focused policies that promote the inflow of these types of capital flows.

CHAPTER FIVE

CAPITAL FLOWS AND ECONOMIC GROWTH IN NIGERIA[9]

5.1. INTRODUCTION

The need for external capital flows to developing countries to supplement domestic savings for investment and growth cannot be over-emphasised. For most countries, the gap between domestic savings and domestic investment is wide; thus to achieve sustainable economic growth, countries require other sources of capital outside the domestic economy. The need for external finance is even greater in developing African countries such as Nigeria, where there are generally high levels of poverty and low domestic capacity to save. The realisation of this need for external capital flows has led many African countries, including Nigeria to liberalise their financial systems.

In response to this liberalisation, foreign capital flows to Africa in the form of foreign direct investment (FDI) and foreign portfolio investment (FPI) have been on the increase in recent years. History shows that foreign capital has grown significantly in sub-Saharan Africa with Nigeria accounting for a greater portion of this. More specifically in sub-Saharan Africa, FDI increased from US$1.54 billion in 1981 to US$39.84 billion in 2012, while portfolio equity increased from US$3.18 million to US$9.94 billion over the same period. In Nigeria, FDI increased from US$544.33 million in 1981 to US$7.10 billion in 2012 accounting for almost 20% of the total FDI in sub-Saharan Africa in 2012 (World Bank, WDI 2014). Like many sub-Saharan African countries, Nigeria has adopted policies aimed at attracting foreign capital which have allowed for greater capital inflows into the economy. This inflow of capital is ideally expected to promote economic growth. Moreover, the effect of capital flows on economic growth also depends both on the type of foreign capital and the type of economy (Aizenman *et al.* 2013).

By exploring the effect of each of the capital flows on economic growth, one would be able to determine the relative contribution of each of the foreign capital to economic growth of Nigeria. Understanding the type of foreign capital that contributes mostly to economic growth would accordingly help to channel efforts to attracting such capital flows to Nigeria. Being both the

[9] A paper based on this chapter has been submitted for publication to the *African Finance Journal (AFJ)*.

most populous country in sub-Saharan Africa by number of citizens and the continent's largest economy, it is an attractive destination for investors, therefore Nigeria needs to focus on the specific type of foreign capital that improves its economy the most and can sustain economic growth the best.

Although numerous studies exist on individual capital flows in Nigeria, especially studies on FDI (Adelegan, 2000; Akinlo, 2004; Ayanwale, 2007; Fasanya, 2012; Obiechina & Ukeje, 2013), studies addressing all the foreign capital flows to determine the most beneficial for the country are rare. This chapter will therefore contribute to the existing body of knowledge on foreign capital flows and economic growth in Nigeria. To this end, the main aim of this chapter is to investigate and determine the effect of four major foreign capitals, namely FDI, debt liabilities, official development assistance and remittances, on the economic growth of Nigeria over the past few decades to determine which one in particular benefits the economy most.

In the next section, foreign capital flows and economic growth are examined in the Nigerian context. The third section reviews the most pertinent, relevant literature. Section 5.4 presents the econometric procedure followed in the analysis, while section 5.5 presents and discusses the results. Section 5.6 summarises and concludes the chapter with some recommendations.

5.2. OVERVIEW OF CAPITAL FLOWS AND ECONOMIC GROWTH IN NIGERIA

Nigeria gained independence from British colonisation in 1960. Since then, the country has gone through different reforms such as financial sector and monetary reform, political sector reform and macro-economic reforms, all of which have impacted greatly on the level of foreign capital flows into the nation. A few years after gaining independence, Nigeria was engulfed in a civil war as a result of the two military coups of 1966 which were just six months apart. As a result and within a relatively short period, the Nigerian economy deteriorated rapidly and recorded negative GDP growth between 1966 and 1968.

During the early 1970s, foreign capital flows into Nigeria increased especially after the discovery of rich oil reserves, an era appropriately termed the 'oil boom'. This largely led to the increase of foreign capital flows mainly in the form of FDI into the oil sector. Nigeria also started borrowing externally in the 1970s – a trend that has continued to increase rapidly ever since. For example, external debt increased by 146% in a single year from US$1.3 billion in 1976 to US$3.2 billion

in 1977. By 1994, Nigeria's indebtedness stood at US$34.0 billion (Ezeabasili, Isu & Mojekwu, 2011).

Theoretically, foreign capital flowing into a country can be affected by 'pull' and 'push' factors known as 'domestic' and 'external' factors respectively. Both external and domestic factors were responsible for the debt accumulation in Nigeria, including but not limited to, the impact of world oil price shocks, rising interest rates, declining trade and the liberal lending policies of large international commercial banks. The external factors were further exacerbated by domestic factors mainly attributable to macro-economic policy errors such as those linked to irresponsible fiscal decisions and exchange rate misalignment (Ajayi, 1991 in Ezeabasili et al., 2011).

The growth in GDP in Nigeria was initially driven by the agricultural sector which was the mainstay of the Nigerian economy before the discovery of oil (Obiechina & Ukeje, 2013). The Nigerian economy is highly dependent on the oil sector and it has accordingly been the greatest source of foreign exchange being introduced into the economy. As might be expected, the major source of foreign capital flows was mainly accounted for by FDI into the oil sector as the inflow of FDI was mainly resource-oriented. Nigeria is a resource-based country and is one of the largest recipients of FDI in sub-Saharan Africa. According to United Nations Conference on Trade and Development (UNCTAD) World Investment Report (2006), Nigeria received 11% of Africa's total inflow of FDI in 2006 and 70% of West Africa's total inflow of FDI in the same year. However, petroleum sector accounted for 80% of the total inflow of FDI, which makes the sector the largest recipient of FDI into Nigeria. It also revealed that Nigeria dominated the increase of FDI inflows into West Africa from $3.2 billion in 2004 to $4.5billion in 2005, a 40% increase which represented 15% of Africa's total FDI value at the time. Nigeria was one of the sub-Saharan African countries that introduced policy measures to promote investment through tightening its regulatory framework by adding local content requirements (UNCTAD, 2010).

Specifically in Nigeria, FDI has been a major target for the past few decades to foster an increase in economic growth. As a result, efforts have been made through different policies to attract FDI. One of the policy measures adopted was the establishment of the Structural Adjustment Programme (SAP) in 1986, which provided the basis for deregulation of the Nigerian economy (CBN, 2001). Nigeria implemented the SAP with a view to restore the economy and make the

country better able to service its debt. Prior to the introduction of SAP, Nigeria had an over-protective investment policy (i.e. the Nigeria Indigenisation decree of 1972), which affected growth of foreign capital flows into the economy (Obiechina & Ukeje, 2013). The abolition of the Nigerian Enterprises Promotion decree of 1989 essentially prevented the economy from maximising its potential when compared to the East Asian countries who were already operating 'open-door' policies in terms of FDI since the 1960s (Adelegan, 2000).

Other factors such as a destabilising debt burden as well as socio-economic and political developments mitigated the inflow of FDI in the 1980s. The regulatory and institutional framework required prior to foreign companies being approved and incorporated contributed to a large extent to discourage FDI into Nigeria before 1998 when the Industrial Development Co-ordinating Committee (IDCC) was set up. FDI reduced in 1994 due to the adverse political climate and macro-economic problems evidenced by rising inflation, and interest and exchange rate volatility in the country at that time.

The investment in the global system of mobile communications (GSM) has increased the inflow of FDI into the Nigerian telecommunication industry. According to Central Bank of Nigeria (CBN), 2001, deregulation of the Nigerian telecommunication sub-sector in 2001 resulted in a remarkable improvement in the sector. The government landline operator, NITEL, initially experienced an increase in functioning landlines following the introduction of GSM, but could regrettably not sustain it. The combined subscriber network of the two private operators (MTN and Econet) that began operations in 2001 increased from 1,660,000 in that year to 2,050,000 subscribers in 2003, representing an increase of 23.4%. These two private operators are foreign investors in the Nigerian economy and over the following years, a massive increase in subscribers was witnessed. This subsequently also led to an increase in economic growth.

There have been increases in capital flows, especially FDI, into Nigeria since the early 1990s until recently when we observe a reduction in its value (Figures 5.1 and 5.2). This reduction may be due to the present insecurity in the country with the ongoing bombing attacks and kidnapping by Boko-Haram, a radical Islamist group predominantly operating in the north-eastern part of Nigeria. The presence of such insurgent groups might affect investors' decision to make investments in the form of FDI, FPI and remittances in the country. All the capital flows as a percentage of GDP can be seen to be declining, except for portfolio equity – a relatively new

form of capital inflow into the country which seems to be rising rapidly. The percentage of debt liabilities to economic growth has also been very high in the past as can be observed from Figure 5.1. Figure 5.2 excludes debt liabilities to show a clearer view of the other capital flows.

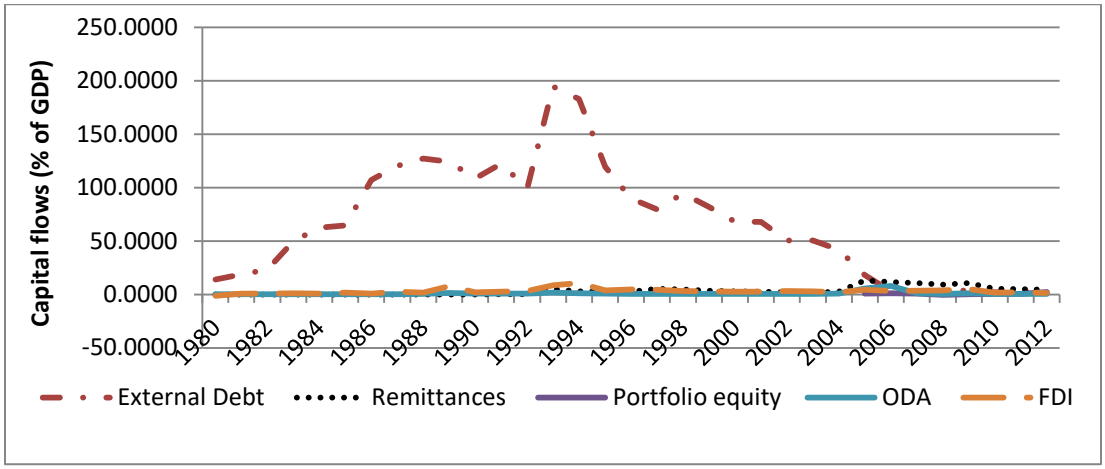


Figure 5.1: Capital flows in Nigeria as a % of GDP (1980 – 2012) including debt flows

Source: Authors' based on World Bank World Development Indicators database 2014

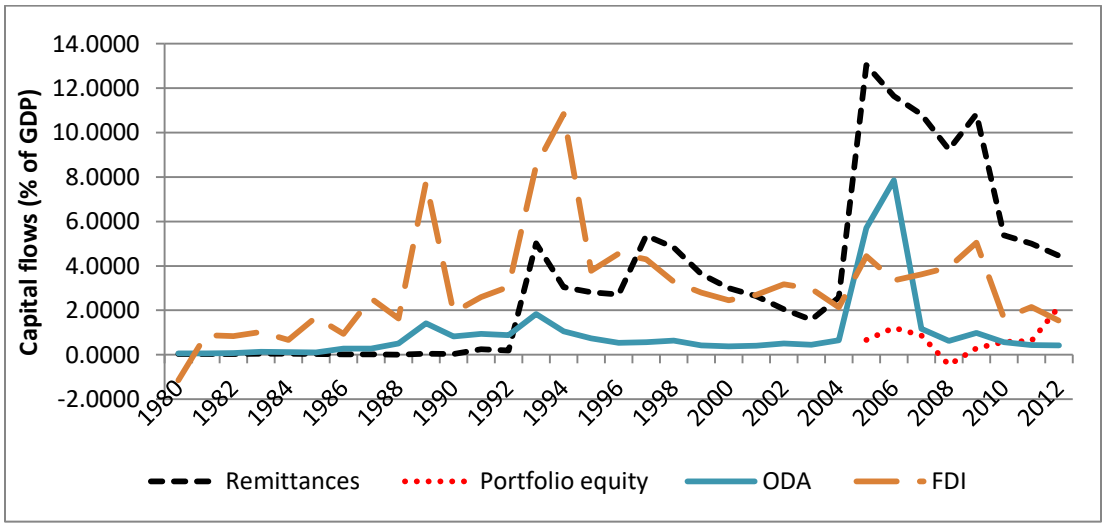


Figure 5.2: Capital flows in Nigeria as a % of GDP (1980 – 2012) excluding debt flows

Source: Authors' based on World Bank World Development Indicators database 2014

Remittances did, however, start to rise significantly in Nigeria in 2004 from US$2.27 billion, and stood at US$20.6 billion as at 2012. The increase is mainly attributable to the Nigerian diaspora

being encouraged by the economic growth observed to invest in the country after the change from military to democratic rule. Nevertheless, in recent years remittances, as a percentage of GDP, have also reduced which might be linked to the prevailing insecurity in the country and to some extent the recession in the advanced economies. During this same period, Nigeria witnessed a drastic reduction in receipt of foreign aid, down from US$11.4 billion in 2006 to US$1.9 billion in 2012 (World Bank, 2014). The reduction in foreign aid might be explained by the world viewing Nigeria as emerging into a middle-class economy, thus no longer justifying receiving such foreign aid. Although we observe a decline in most foreign capital flows into Nigeria as a percentage of GDP in recent years, we see an increase in their actual values since 2000 as illustrated in Figure 5.3, except for debt flows (which declined significantly) and official development assistance (ODA) (which also reduced).

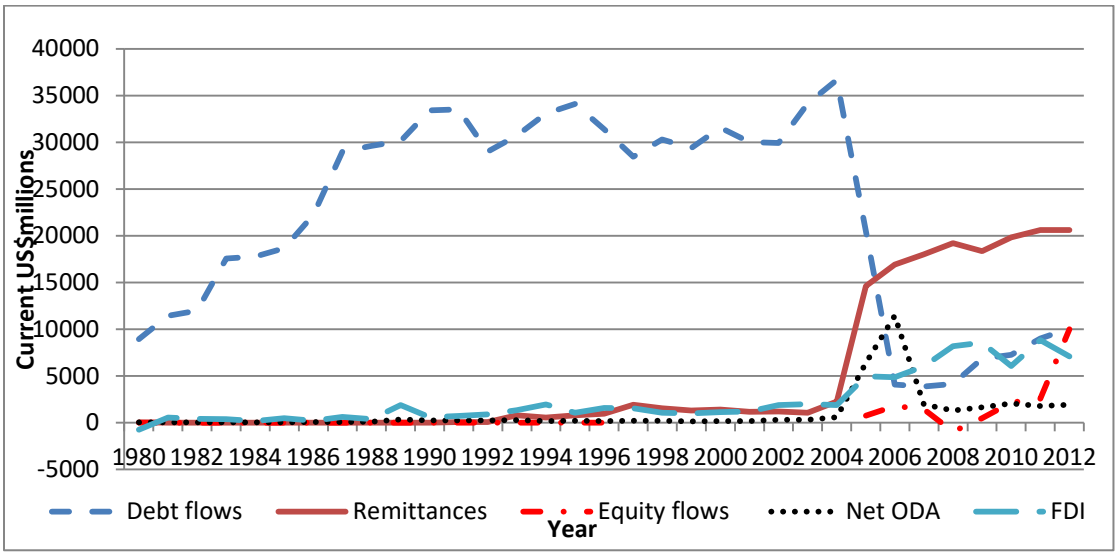


Figure 5.3: Selected Foreign capital flows to Nigeria in current US$ million

Source: Author's based on World Bank World Development Indicators database 2014

Portfolio equity, a recent phenomenon in the country, has recorded a rapid rise in the last few years. The increase in capital flows into the country might have been as a result of changes in policies after the change to democratic rule in 1999. This period also coincided with the steady, positive growth in GDP, recording an average of 7.98% per annum over the 14 years from 2000 to 2013 (Figure 5.4). Looking at the trend of growth in GDP, we notice poor performance in the

1980s and 1990s, averaging minus 1.42% and 2.63% per annum over the two decades respectively as shown in Table 5.1. These periods generally recorded very low – and at times even negative – growth rates, although various policies such as SAP were put in place for the economic development of the country (Bamgboye, 2014: 2342). Unfortunately, however, the political instability and general insecurity in the country during this time might have deterred investors from entering the economy.

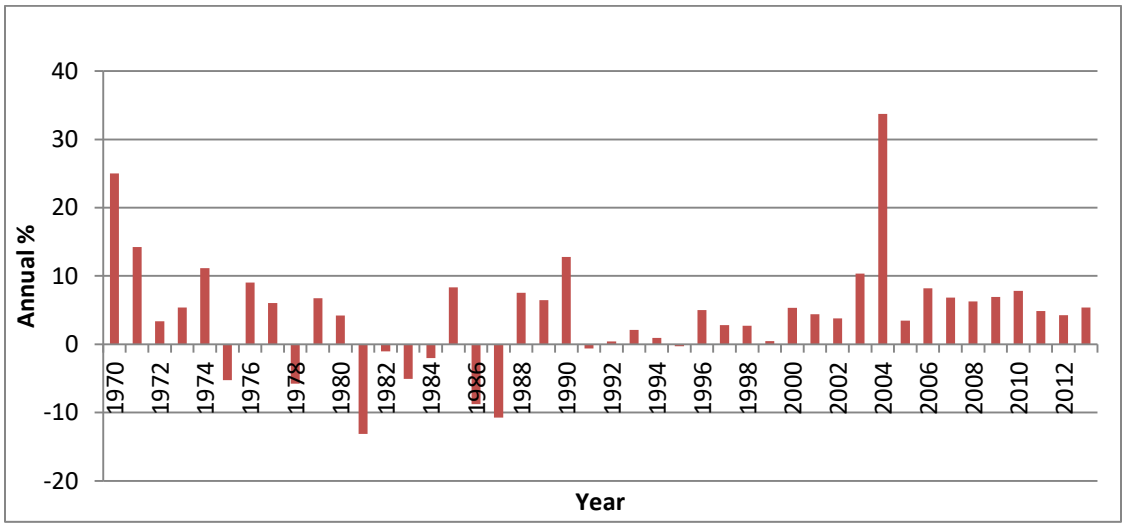


Figure 5.4: GDP growth rate in Nigeria (1970-2012)

Source: Author's based on World Bank World Development Indicators database 2014

Table 5.1: Annual GDP growth averages from 1960 – 2013 in Nigeria

Period	Growth averages
1960 – 1969	2.85%
1970 – 1979	7.00%
1980 – 1989	-1.42%
1990 – 1999	2.63%
2000 – 2009	8.93%
2010 – 2013	5.60%

Source: Authors' calculations based on World Bank World Development Indicators database 2015

As mentioned earlier, the military coups of the 1980s which plunged Nigeria into military rule for 16 years had a negative effect on the growth of the economy. In the year following the change to democracy in 1999, Nigeria started experiencing a steady increase in GDP growth, which might have resulted from a change in policies leading to an increase in capital flows. The

most pertinent policy issues between 1999 and 2006 were aimed at boosting economic growth which included the development of the private sector, privatisation of public utilities, rehabilitation and reconstruction of infrastructure, development of non-oil exports, liberalisation of the foreign exchange market, reduction of debt overhang, banking system reforms, and fiscal and pension reforms, among others, which paved the way for increased foreign investment into the country (CBN, 2008). This trend draws attention to the relationship between the foreign capital flows into the country and economic growth. Nigeria, as the most populous country in sub-Saharan Africa and the continent's largest economy, needs to focus on the type of foreign capital that improves its economy most significantly. Nigeria therefore needs to concentrate on the capital flow that translates to more economic growth for the nation. The issue to address here is if the foreign capital flows are responsible for the present economic growth and, if so, how can Nigeria direct policies and focus on the foreign capital flow that contributes the most to the economy and leads to sustainable growth the most.

In assessing the interaction between foreign capital flows and GDP per capita from 1970 to 2012, one can see from Table 5.2 below that debt liabilities have a very low correlation with GDP per capita during the whole period. FDI and remittances are more correlated with GDP per capita than ODA over the period of observation. Portfolio equity, however, was computed from 2005 to 2012 as there were no data prior to this period in the country from the World Development Indicator (WDI). Remittances show the greatest correlation with GDP per capita compared to the other flows, while ODA has the lowest correlation with GDP per capita. Comparing the period of military rule (1970 – 1999) to democratic rule (2000 – 2012), we can see that the correlation between remittances, FDI and ODA were both lower and negative during the period of military rule.

Table 5.2: Correlation of capital flows and GDP per capita from 1970 – 2012 in Nigeria

GDP per capita	Foreign direct investment	Foreign portfolio equity	Remittances	Official development assistance	Debt liabilities
1970 – 1999	-0.4988		-0.3562	-0.5569	0.4354
2000 – 2012	0.9137	0.5160	0.9437	0.2525	0.4934
1970 – 2012	0.8295	0.5160	0.8893	0.4586	0.0114

Source: Author's calculations from World Bank World development indicators 2014

From the above overview of the Nigerian case, one can clearly link the political situation of the country at any given time to the level of capital inflows and economic growth. Moreover, this points to the fact that the political arena of the country may play a major role in the level of economic growth and capital inflows. Next we explore the empirical evidence on Nigeria in the next section.

5.3. EMPIRICAL EVIDENCE ON NIGERIA

Foreign capital flows and the economic growth nexus has generated an ongoing debate in empirical studies over the years. While a significant number of studies have focused on each type of capital flow, their results remain ambiguous and inconclusive. Very few attempts have been made at comparing the relative effects of the various capital flows to economic growth (Reisen & Soto, 2001; Aizenman et al., 2013; Driffield & Jones, 2013). Since the cross-sectional and panel analyses on developing countries do not allow for country-specific deductions from the estimation, the Nigerian studies that employed time series analysis that caters for the inherent flaws of the above-mentioned estimation method is concentrated on in this review.

The majority of the studies on Nigeria focus on a single capital flow, especially FDI. This is evidenced by the numerous studies on FDI (Adelegan, 2000; Akinlo, 2004; Fasanya, 2012; Obiechina & Ukeje, 2013; Ugochukwu, Okore & Onoh, 2013; Ajide, 2014). These studies generally find a positive but insignificant effect of FDI on the economic growth of Nigeria, with the exception of Okonkwo, Egbunike and Udeh (2015), who found a negative relationship.

It is notable that studies addressing several capital flows to determine the most beneficial for the country are rare. The few recent studies on capital flows and economic growth identified for Nigeria are Ogujiuba and Obiechina (2012) on FDI and FPI; Adegboye, Ogbebor, and Egharvba (2014) on FDI, external debt, and short-term capital flows; and Oni, Imolehin, Adelowo and Adejumo (2014) on foreign private investment.

Ogujiuba and Obiechina (2012) concluded that foreign private investment – defined as net direct investment and net portfolio investment – should be encouraged for the promotion of economic development in Nigeria from their study using a non-restrictive vector autoregressive (VAR)–structural vector autoregressive (SVAR) model for the period 1986 – 2008. They recommended that the flow of these foreign private capitals should not be discouraged, but that the government

should be more cautious about the nature and sources of the capital flows. This they believe is crucial to forestall the potential adverse impacts of these flows on key macro-economic variables and economic growth in a situation of their abrupt surge or flight.

Adegboye et al., (2014) employed the vector error correction model (VECM) to show the dynamic relationship between FDI, external debt and short-term capital flows on economic growth in Nigeria using quarterly data from 1981 to 2012. The study revealed that external debt has the strongest effect on growth in Nigeria and concluded that well-controlled foreign debt administrations may likely lead to better economic welfares in Nigeria than reliance on other types of foreign capital. They also concluded that foreign capital inflows into Nigeria should be coordinated to avoid possible liquidity crises in the economy, especially in the short run.

Oni et al., (2014) examined the impact of foreign private investment on the economic growth of Nigeria. They employed multiple regression analysis (Johansen co-integration and ordinary least square OLS method) using data from 1980 to 2010, and observed a positive relationship between foreign private investment and GDP. They suggested that government should endeavour to provide a favourable and stable macro-economic environment for foreign private investment in Nigeria by putting in place appropriate fiscal, monetary and general economic policies.

The study by Oni et al. (2014) categorised all capital flows under foreign private investment without disaggregating it; therefore their study does not reveal the effect of each capital flow on the economic growth of Nigeria. Ogujiuba and Obiechina (2012) used net portfolio investment and net direct investment only in their study of foreign private investment without considering other forms of foreign investments. Adegboye et al. (2014) covered three capital flows in Nigeria.

This chapter fills the gap in the existing body of literature by not only determining the contribution of each capital flow on the Nigerian economy, but also more importantly, the relative contribution of each one to economic growth such that Nigeria can know which is best to attract through targeted policies. This study employs the Johansen co-integration and vector error correction model (VECM) procedure and uses updated data from the WDI up to 2012. This chapter also includes remittances and official development assistance which were not included in previous studies.

The next section presents the empirical analysis, which comprises the data and methodology used in the estimation analysis, and highlights the model specification and econometric procedure followed to address our research question of the relative contribution of foreign capital flows in Nigeria to determine which is most beneficial to the economy.

5.4. EMPIRICAL ANALYSIS

5.4.1. Model specification and analytical framework

The model specification and analytical framework followed in this chapter are as presented in section 3.3 of chapter 3 which is a multivariate vector error correction model limited to three variables, thus using a trivariate model to avoid the problem of loss of degree of freedom where X_t = f(Y, CF, CV).

A total of 36 models were estimated in the analysis for this chapter. In addition to the analytical framework specified in chapter 3, two dummy variables were introduced, one at a time for all the models in the analysis. One dummy variable was used for political regime (DUMPR) and the other for financial liberalisation (DUMFLN) effects. The dummy variable for political regime was used to capture the possible effect of the different political regimes in the country on foreign capital inflows. A value of 1 was assigned for the period of civilian rule (1979 – 1983, 1999 – 2012) and a value of 0 was assigned for the military rule period (1970 – 1978, 1984 – 1998). It is expected that democratic rule will attract more capital flows than a military rule. The dummy variable for financial liberalisation was used to capture the effect of financial liberalisation in the country. The variable takes a value of 1 after liberalisation (1986 - 2012) and a value of 0 before liberalisation (1970 - 1985). The period of financial liberalisation corresponds to period beginning with the introduction of structural adjustment programme (SAP) in Nigeria.

To compare the result, the effect of each of the measures of capital flows was observed to determine which has the most and strongest effect on economic growth after controlling for the effects of the control variables. The capital flows that have the highest and most statistically significant positive effect on economic growth are regarded as the best for the economy. The *a priori* expectation of the control variables on capital flows and economic growth presented in table 3.1 of chapter 3 applies to Nigeria as well.

5.4.2. Data and methodology

The data employed in this chapter are as described in section 3.4 of chapter 3. However, portfolio equity investment (PES) was omitted from the analysis in this chapter as there was no sufficient number of observations to conduct meaningful and reliable time-series estimation since portfolio equity is recently just gaining grounds in Nigeria.

Real GDP per capita is used as a proxy for economic growth with four capital flows and nine control variables. The capital flows are all expressed as a percentage of GDP and converted to natural logarithm (LN) form with the exception of remittances, which were not expressed in LN form due to its small scale. All the control variables (CVs) are in their LN form. The capital flows used in the estimation are foreign direct investment liability stock (FDIS), debt liability stock (DLS), official development assistance (ODA) and remittances (REM). The explanatory variables used are the standard growth determinants obtained from the literature as stated in chapter 3.

5.4.3. Econometric procedure

Section 3.5 of chapter 3 contains the econometric procedure followed. The estimation was continued with the models where either economic growth or capital flow was endogenous. The slope coefficients were reported after the model was normalised on the endogenous variable. After this process, each dummy variable (DUMPR and DUMFLN) was introduced into the model estimation one at a time. The error correction term (ECM) was also reported as well as the adjusted R^2 value. The model was then tested for serial correlation in the lag length used in the VECM using the residual serial correlation LM test to ensure that there are no serial correlation problems. Heteroskedasticity test was performed for the model to be qualified as a good model.

5.5. EMPIRICAL RESULTS

The estimation analysis started with unit root tests. The variables were tested for both unit root and stationarity. The ADF unit root was tested and is reported in Table 5.3. It was observed that four variables (official development assistance, domestic investment, exports of goods and services and government consumption) were stationary at levels I(0) and first difference I(1). All the other variables used in the estimation were stationary at first difference I(1). The alternative test for no unit root, namely the KPSS stationarity test, was done and the Ng-Perron unit root test was also conducted to ensure the robustness of the result (Appendix Table A5.2 and A5.3

respectively). The results of the ADF unit root tests were confirmed by both the KPSS stationarity test and the Ng-Perron test. The breakpoint unit root test was also done and it confirmed official development assistance, export of goods and services, and government consumption to be stationary at level, I(0) (Table 5.4). From this, the Johansen co-integration test can be done as this estimation technique is best used where the degree of integration of the variables are I(1) (i.e. at first difference).

Table 5.3: ADF Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	None	0	0.98	0	-5.56***	I(1)
LNDLS	None	0	-0.29	0	-5.89***	I(1)
LNFDIS	None	0	-0.02	0	-6.59***	I(1)
REM	Trend	0	-2.89	0	-6.12***	I(1)
ODA	Intercept	1	-4.14***	1	-7.15***	I(0)
LNDI	Intercept	0	-3.01**	1	-5.23***	I(0)
LNEXP	Intercept	0	-3.26**	0	-9.18***	I(0)
LNFD	None	0	0.86	0	-5.08***	I(1)
LNGC	Intercept	6	-3.99***	0	-6.22***	I(0)
LNIMP	Intercept	0	-2.61*	0	-7.43***	I(1)
LNINF	Intercept & Trend	1	0.70	0	-3.46*	I(1)
LNPC	Intercept	1	-2.07	0	-4.73***	I(1)
LNREER	Intercept	1	-2.54	0	-4.22***	I(1)
LNXM	Intercept	0	-2.85*	0	-8.30***	I(1)

Notes: I(0) – degree of integration at level; I(1) – degree of integration at first difference

*, **, and *** – denotes the rejection of the null hypothesis of unit root at 10%, 5%, and 1% level of significance respectively

Source: Computed by author

Table 5.4: Breakpoint Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	None	0	-1.87	0	-7.47***	I(1)
LNDLS	None	0	-1.86	0	-6.95***	I(1)
LNFDIS	None	0	-2.82	0	-7.54***	I(1)
REM	Trend	8	-4.60	0	-12.68***	I(1)
ODA	Intercept	0	-6.36***	1	-9.68***	I(0)
LNDI	Intercept	2	-3.46	1	-6.07***	I(1)
LNEXP	Intercept	0	-5.61***	0	-9.53***	I(0)
LNFD	None	0	-2.67	0	-5.72***	I(1)

LNGC	Intercept	4	-5.59***	0	-6.36***	I(0)
LNIMP	Intercept	6	-4.33*	0	-7.79***	I(1)
LNINF	Intercept & Trend	1	-1.70	4	-5.42**	I(1)
LNPC	Intercept	1	-3.14	0	-4.90**	I(1)
LNREER	Intercept	6	-5.79***	0	-5.05***	I(0)
LNXM	Intercept	6	-4.72**	0	-8.93***	I(0)

Notes: *, **, and *** denotes the rejection of the null hypothesis of unit root at 10%, 5%, and 1% level of significance respectively

Source: Computed by author

The variables were then tested for deterministic trend assumption using the ADF test at level (see Table 5.5 below). One variable was revealed to be trend stationary, while eight had intercept only and one variable indicated both intercept and trend. The other four variables had neither intercept nor trend.

Table 5.5: Test of deterministic trend assumption

Variables	Intercept only	Stochastic trend	Deterministic trend	Model
LnYPCK	0.050	0.062	1.724	None
LnDLS	1.054	1.519	-2.173	None
LnFDIS	1.495	1.332	-0.132	None
REM	1.361	-1.800	2.525*	Trend
ODA	2.255*	-0.224	1.904	Intercept
LnDI	2.808**	1.374	0.395	Intercept
LnEXP	3.322***	3.724**	1.642	Intercept
LnFD	2.154	2.358	0.274	None
LnGC	3.985***	4.391***	-0.207	Intercept
LnIMP	2.580**	2.474	-0.038	Intercept
LnINF	-2..441**	-0.792	2.011*	Intercept & Trend
LnPC	2.219*	2.600	1.368	Intercept
LnREER	2.471*	2.155	-0.703	Intercept
LnXM	2.883**	2.752*	0.639	Intercept

Notes: None – model without intercept and trend; Intercept – model with intercept only; Trend – model with intercept and trend. *, **, and *** – denotes the rejection of the null hypothesis of unit root at 10%, 5%, and 1% level of significance respectively

Source: Computed by author

Next, Johansen co-integration test was performed after the lag length selection. The results of the trace statistics and maximum eigenvalue statistics are reported in Table 5.6 (see table A5.4 in

appendix for the full test result). A total of 36 models, 9 for each of the four capital flows were estimated. Most of the models were found to have at least one co-integrating relation, which shows a long-run relationship exists between them. Of all the capital flows, the models that did not indicate any co-integrating relation even after estimating up to lag 6 were not further estimated and accordingly not reported.

Table 5.6: Summary of Johansen Co-integration test results: VAR = {Y, CF, and CV}: Nigeria

CF Variables	DLS		FDI		ODA		REM	
CV	Trace	Max	Trace	Max	Trace	Max	Trace	Max
LNDI	1	1	3	1	1	1	1	0
LNEXP	1	1	1	1	1	1	1	0
LNFD	1	0	1	0	1	1	1	1
LNGC	1	1	1	0	1	1	X	X
LNIMP	1	0	1	1	1	1	3	1
LNINF	1	1	1	0	X	X	2	1
LNPC	1	0	1	1	1	1	1	1
LNREER	1	0	1	0	1	1	X	X
LNXM	1	1	1	1	1	1	1	0

Notes: 0 represents no co-integrating relation; 1, 2 and 3 represents one, two and three co-integrating relations respectively; while X represents model with no report due to poor residual diagnostic test result.

Source: Computed and compiled by author

Next, the weak exogeneity test was conducted, which revealed that the causality between economic growth and capital flows in Nigeria is not bi-directional with the exception of only three models (Table 5.7). It was further found that remittances and foreign direct investment cause economic growth in Nigeria in all the models, while official development assistance and debt liability showed unidirectional causality running from economic growth. Foreign direct investment, however, had a mixed effect of causality, showing that foreign direct investment influences economic growth and vice versa. The results of the weak exogeneity test are reported in Table 5.7 below.

Table 5.7: Weak Exogeneity test

Weak Exogeneity test								Causality between Y and CF		
Variables					Weak Exogeneity test			Null Hypothesis		
CF	CV	Obs	K	A	Y	CF	CV	Y↔CF	Y→CF	Y←CF
		Debt Stock								
LNDLS	LNDI	31	3	3	0.02[0.89]	6.70[0.01]	0.94[0.33]	No	Yes	No
	LNGC	31	2	3	1.34[0.25]	6.83[0.01]	0.03[0.87]	No	Yes	No
	LNINF	42	4	4	2.53[0.11]	9.76[0.00]	2.07[0.15]	No	Yes	No
	LNPC	42	5	2	0.07[0.80]	2.90[0.09]	1.01[0.31]	No	Yes	No
	LNREER	32	3	3	7.75[0.01]	0.18[0.67]	4.86[0.03]	No	No	Yes
		Foreign direct investment stock								
LNFDIS	LNGC	31	2	3	2.81[0.09]	9.71[0.00]	1.56[0.21]	Yes	Yes	Yes
	LNPC	42	5	2	3.99[0.05]	0.97[0.32]	4.19[0.04]	No	No	Yes
	LNREER	32	3	3	3.04[0.08]	0.01[0.92]	4.66[0.03]	No	No	Yes
		Official development assistance								
ODA	LNEXP	43	2	3	0.25[0.62]	10.70[0.00]	0.68[0.41]	No	Yes	No
	LNFD	42	3	3	2.23[0.13]	13.86[0.00]	8.21[0.00]	No	Yes	No
	LNGC	32	4	3	1.72[0.19]	2.86[0.09]	2.18[0.14]	No	Yes	No
	LNIMP	43	4	3	0.21[0.64]	8.37[0.00]	0.93[0.34]	No	Yes	No
	LNPC	42	3	3	1.00[0.32]	15.80[0.00]	8.93[0.00]	No	Yes	No
	LNREER	43	3	3	3.32[0.07]	9.13[0.00]	6.30[0.01]	Yes	Yes	Yes
	LNXM	43	4	3	0.12[0.73]	8.60[0.00]	4.13[0.04]	No	Yes	No
		Remittances								
REM	LNEXP	35	2	3	2.78[0.09]	2.03[0.15]	0.88[0.35]	No	No	Yes
	LNFD	35	4	3	3.53[0.06]	4.45[0.03]	5.84[0.02]	Yes	Yes	Yes
	LNIMP	35	4	4	5.91[0.02]	0.01[0.90]	0.00[0.96]	No	No	Yes
	LNINF	35	3	4	4.80[0.03]	0.15[0.70]	3.99[0.05]	No	No	Yes

Notes: Y↔CF = bi-causality between Y and CF; Y→CF = causality from Y to CF; while Y←CF = causality from CF to Y; The values in parenthesis [ ] represents probabilities. Where a 'Yes' is indicated in the first column, this signifies a bi-causality between Y and CF, otherwise, 'No' is indicated where the causality is not bi-directional. The 2nd column represents causality from Y to CF meaning that Y influences the corresponding CF while the 3rd column represents causality from CF to Y indicating that the corresponding capital flow is responsible for Y.

Source: Computed and compiled by authors

In the models reported, the causality between economic growth and the corresponding capital flow was established. For debt liabilities, the results suggest that causality runs mainly from economic growth to debt liabilities in four of the models tested, with one model showing

causality running from debt liabilities to economic growth. There was no instance of bi-directional causality. This indicates that as the level of GDP per capita increases, debt liability stock in Nigeria reduces. By contrast, however, foreign direct investment suggests the opposite, where causality runs mainly from foreign direct investment to economic growth in two models compared to one model that showed bi-directional causality running from economic growth to foreign direct investment and vice versa. For official development assistance, the results show that official development assistance does not cause economic growth in all the models tested, except for one model showing bi-directional causality where economic growth showed a sign of influence on official development assistance, thus indicating that causality runs from economic growth to official development assistance and vice versa. Finally, for remittances, the overall evidence seems to suggest that the causality relationship between economic growth and remittances is mixed as one model indicated bi-directional causality, while the other three models indicated unidirectional causality from remittances to economic growth.

Thus far, evidence of a long-run relationship between economic growth and capital flows can be seen in Nigeria. The magnitude and sign of the causal effect was further explored. The slope coefficients of the estimated models are recorded in Table 5.8. The LM-statistics from the serial correlation test and their probabilities are also reported. Where the probability was above the 10% significance level (which signifies that we cannot reject the null hypothesis of no serial correlation at lag order), then it was taken that the model had passed the serial correlation test. A heteroskedasticity test was also performed. Here, the chi-square and probability were reported and the model had to pass this test with probability above 10% for it to be qualified as a good model. The results reported in table 5.8 show the models that passed all the residual diagnostic tests. Most of the models also had a good explanatory power except for FDI (as evidenced from the adjusted R^2 value), which shows a weak link between foreign direct investment and economic growth in Nigeria.

From Table 5.8, it was observed that an increase in the output of the economy leads to a reduction in the level of official development assistance into Nigeria. Furthermore, official development assistance had a negative relationship with economic growth and insignificant in four of the six models reported, with elasticities ranging from minus 0.64 to minus 3.99. With the exception of one model, all the ECM terms are significant at a 1% significance level, while the

degree of adjustment ranges from 38% to 78% with most values closer to the upper part of the range. This shows a relatively fast speed of adjustment to changes in the long-run equilibrium. The adjusted R^2 values were all above 40%, thus indicating high explanatory power of the models. With the introduction of the financial liberalisation dummy variable, official development assistance still maintained a negative relationship but insignificant in all the models estimated (Table A5.5). This implies that financial liberalisation does not affect the contribution of foreign aid to economic growth. The dummy variable for political regime also does not change the effect of foreign aid on economic growth (Table A5.6).

Debt liability stock exhibits a negative and significant relationship with economic growth in all the models reported with elasticities ranging from minus 0.26 to minus 5.03, and values skewed towards the upper end of the range. The speed of adjustment to long-run equilibrium is relatively moderate from 29% to 61% per year as shown by the ECM term. The adjusted R^2 values range from 15% to 55%, indicating relatively moderate explanatory power of the model. This result implies that as the economy is improving, the debt liability of Nigeria reduces.

This might be as a result of the creation of the debt management office (DMO) as a strategy to reduce debt overhang in the country after the transition to democracy in 1999. This resulted in the debt forgiveness of US$18.5 billion by the Paris Club of Creditors[10] and the subsequent exit from the Paris club debts in 2006 and the payment of outstanding debts owed to the London Club of Creditors[11] in the last quarter of 2007 (CBN, 2008). With the introduction of political regime dummy variable in the debt liability estimations, it was observed that political regime dummy variable was significant only in the model with government consumption as control variable implying that the type of political regime in the country has an effect on the level of government consumption in Nigeria. This was the only model where political regime dummy variable was significant.

[10] A voluntary, informal group of creditor nations who meet to provide debt relief to debtor developing countries experiencing payment problems by reducing or renegotiating official debt owed to them by the government of these nations i.e. the Paris club handles public claims

[11] An informal group of private creditors in the international community whose duty is to reschedule debt payments by government of owing countries to commercial banks. The London club deals with public debts held by private creditors.

Table 5.8: Long-run parameters (Slope Coefficients): Nigeria

Y = LNYPCK						Slope Coefficients						
CF	CV	Obs	K	A	Intercept	Y	CF	CV	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock										
LNDLS	LNDI	31	3	3	32.93	-5.03(-8.27)***		1.55(3.36)***	-0.40(-2.54)**	0.28	9.18[0.42]	74.50[0.76]
	LNGC	31	2	3	31.99	-4.26(-12.93)***		-0.21(-1.13)	-0.61(-2.66)**	0.15	14.52[0.11]	51.09[0.35]
	LNINF	42	4	4	55.87	2.73(2.18)**		-16.19(-5.74)***	-0.31(-3.39)***	0.55	12.83[0.17]	98.72[0.92]
	LNPC	42	5	2	18.02	-2.34(-1.91)*		0.49(1.30)	-0.29(-2.74)***	0.50	7.40[0.60]	133.16[0.91]
	LNREER	32	3	3	8.405		-0.26(-9.56)***	-0.19(-4.32)***	-0.41(-3.06)***	0.20	8.69[0.47]	70.83[0.85]
		Foreign direct investment stock										
LNFDIS	LNPC	42	5	2	8.48		-0.50(-4.34)***	-0.17(-0.90)	0.16(2.72)***	0.10	7.38[0.60]	135.89[0.88]
	LNREER	32	3	3	30.02		-1.99(-2.00)*	-3.48(-3.82)***	-0.02(-1.73)*	0.03	11.01[0.28]	81.03[0.57]
		Official development assistance										
ODA	LNFD	42	3	3	5.74	-1.75(-1.34)		2.13(3.11)***	-0.56(-4.04)***	0.48	6.91[0.65]	80.97[0.57]
	LNGC	32	4	3	2.49	-0.64(-0.39)		1.29(1.21)	-0.78(-2.44)**	0.42	6.40[0.70]	113.76[0.64]
	LNIMP	43	4	3	27.99	-3.31(-2.38)**		-1.85(-1.99)*	-0.57(-3.48)***	0.45	9.08[0.43]	132.50[0.21]
	LNPC	42	3	3	8.40	-1.55(-1.39)		1.04(2.56)**	-0.72(-4.16)***	0.49	7.45[0.59]	81.58[0.55]
	LNREER	43	3	3	7.74	-2.90(-1.55)		2.52(3.68)***	-0.38(-3.32)***	0.44	4.15[0.90]	84.30[0.47]
	LNXM	43	4	3	40.05	-3.99(-2.35)**		-3.40(-2.96)***	-0.46(-3.52)***	0.49	5.68[0.77]	136.72[0.14]
		Remittances										
REM	LNEXP	35	2	3	16.16		-0.14(-1.47)	-2.74(-2.27)**	0.02(1.79)*	0. 10	6.26[0.71]	60.19[0.11]
	LNFD	33	4	3	-154.11	30.25(4.68)***		-12.09(-2.59)**	-0.20(-2.07)**	0.36	9.87[0.36]	111.06[0.71]
	LNIMP	35	4	4	8.14		0.28(4.14)***	0.63(1.43)	0.09(4.26)***	0.55	2.26[0.99]	117.35[0.55]

Notes: The variables are as defined above. *, **, and *** denotes significance at 10%, 5% and 1% respectively. The values in parenthesis [ ] represents probabilities while the values in ( ) represents t-values.

Source: Computed and compiled by authors.

The results further reveal that foreign direct investment and remittances have a significant impact on economic growth, although remittances have a positive impact whereas FDI has a negative and significant impact. However, the adjusted R^2 value were 3% (real effective exchange rate) and 10% (private credit) for the two models reported for foreign direct investment, indicating a weak link between economic growth and FDI due to the low explanatory power of the model. The elasticities were also minus 1.99 and minus 0.5 for the two models and the speed of adjustment to long-run equilibrium changes indicated by the ECM were quite low at 2% and 16% per year respectively. The negative and weak link between FDI and economic growth might be as a result of the resource seeking nature of FDI in Nigeria, which has very limited spill over effect on the rest of the economy. Imoudu, 2012 disaggregated FDI and found that FDI into the mining, quarrying, manufacturing and processing sectors (sectors receiving the majority of FDI) in Nigeria had negative effects on the economy with only FDI into the telecommunications sector exhibiting positive and significant effect on economic growth. Adigun (2015) also disaggregated FDI into different sectors and found that FDI into the manufacturing sector and transportation and communication industry in Nigeria have negative relationship with economic growth in the long-run as against positive relationship in the short-run. Agricultural sector and trading and business both have positive relationship with economic growth in the long-run but negative relationship in the short-run indicating that agriculture improves the economy but it has to be sustained for a long period as it takes time to re-coup investment in this sector. FDI into the mining sector however maintained a negative relationship with GDP both in the long-run and short-run. FDI into the Nigerian economy has been mainly extractive but in recent times, the telecommunication sector has received FDI.

This thesis affirms the study by Adegboye et al., (2014) as FDI and external debt were observed to have a negative relationship with economic growth. While the ECM terms were not significant with the introduction of political regime dummy variable for the FDI estimations, it was found that they were significant when the dummy variable for financial liberalisation was introduced. This emphasises the faster speed of adjustment to long-run equilibrium changes with financial liberalisation. The dummy variable for financial liberalisation was only significant in three of the models estimated – the model with the control variable PC (private credit by deposit money banks to GDP) in both the debt liability estimation and foreign direct investment, and the model with the control variable IMP (imports) in remittances.

On the other hand, a positive relationship between remittances and economic growth was observed. Remittances lead to economic growth with high statistical significance and elasticity ranging from 0.14 to 0.28. The ECM term is also significant and ranges from minus 0.02% to minus 20%, which shows a relatively low speed of adjustment to changes in the long-term equilibrium. The models have a moderately high explanatory power as evidenced from the adjusted R^2 values ranging from 18% to 55%. The implication of this is that as the economy is growing, Nigerians living abroad are increasingly seeing Nigeria as a promising investment destination and therefore remit more into the economy, in turn leading to increases in remittances in Nigeria.

As can be seen from the results, the different capital flows have different relationships with economic growth. However, the findings by Oni et al., (2014) of a positive relationship between foreign private investment and real GDP cannot be verified as to which particular foreign capital flow was being measured in their study. The findings therefore suggest that remittances should be targeted by Nigeria through appropriate policies for higher economic growth in the country.

5.6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

As much as it is important to know the contribution of capital flows to the economy in general, it is even more important to know the relative contribution of each capital flow in particular to economic growth so that policymakers in Nigeria can know which one is best to attract. The chapter explored the relative contribution of the major capital flows (foreign direct investment, debt flows, foreign aid and remittances) in Nigeria to economic growth. The causal effect between these capital flows and economic growth was investigated. The magnitude and sign of the long-run relationship between these variables was further estimated. Dummy variables were introduced to ascertain the effects of political regime and financial liberalisation on the inflow of foreign capitals into Nigeria.

From the analysis, it was shown that remittances had a more significant positive relationship with economic growth. Most of the coefficients are also highly significant at a 1% level of significance. It was found that remittances contributed more to economic growth in Nigeria during the period of the study. Thus if policies are to be aimed at stimulating growth in the Nigerian economy through attracting foreign capital, the Nigerian government will do well to focus on attracting more remittances through purposefully designed policies that promote the inflow of this type of capital flow. One way to harness remittances is through diaspora bonds

and invested into productive businesses rather than consumed. This would further enhance the contribution of remittances to economic growth.

With regard to foreign direct investment, it can be concluded from the results that an increase in foreign direct investment causes a decrease in GDP per capita. This is not unconnected with the type of foreign direct investment flowing to the country which has historically been resource seeking largely in the oil sector with very little spill over effect on the rest of the economy. To reverse the effects of foreign direct investment in the economy, it would be necessary for the policy makers to target other forms of foreign direct investment, especially market seeking and service oriented foreign direct investment. For this type of foreign direct investment, a stable political and macro-economic environment would be a necessity.

CHAPTER SIX

CAPITAL FLOWS AND ECONOMIC GROWTH IN KENYA[12]

6.1. INTRODUCTION

Foreign capital inflow plays an important role in the economic growth of developing countries and the realisation of this need has led many African countries, including Kenya, to liberalise their financial systems to attract foreign capital in the form of foreign direct investment (FDI) and foreign portfolio investment (FPI). In Kenya, efforts to attract foreign capital flows began with the operation of rapid capital account liberalisation from 1991 to 1995. Such efforts included reducing constraints on foreign currency transactions and introducing foreign exchange bearer certificates of deposit (FEBCs)[13]. Restrictions on portfolio investments, barring a few exceptions, on capital account transactions were also removed (Yoshino, Kaji & Asonuma, 2015: 13). In 2008, Kenya launched its 'Vision 2030' initiative as a way of quickening the transformation of the country into a rapidly developing middle-income nation by 2030. It also aims to make the country competitive internationally and prosperous where every individual will have a high quality of life. This is expected to be achieved through internally generated resources while Kenya continues to benefit from remittances by the Kenyans in diaspora, increased FDI, FPI and cooperation from its development partners to achieve higher economic growth rates in the region of 10% per annum (Government of Kenya, 2007).

Despite these efforts, capital flows into Kenya have historically been moderate. Although official development assistance (ODA) has been high, it has declined recently. This raises two questions: How to attract foreign capital flows; and which one of these is best to focus on given that their relative contribution to economic growth may not be the same since the effects of capital flows on economic growth depend on the type of foreign capital and the type of economy (Aizenman et al 2013).

A review of the available empirical literature reveals that the effects of capital flows on economic growth have not been consistent. Some researchers argue that foreign capital flows would improve developing countries' economic growth (King & Levine, 1993a; Bailliu,

[12] A paper based on this chapter has been accepted for publication by the *Journal of Studies in Economics and Econometrics (S.E.E.)*.

[13] FEBCs were introduced to be used for any current and capital account international transactions without restrictions which were made available to both residents and non-residents. FEBCs do not require license or registration and are redeemed at the central bank at face value at the prevailing official exchange rate.

2000; Aizenman et al., 2013), while others argue that foreign capital flows have a negative effect on growth (Durham, 2004; Murshid & Mody, 2011). By and large, most studies conducted in the Kenyan context have focused on one particular capital flow, namely FDI (Abala, 2014; Ngeny & Mutuku, 2014), while others (Mwangi & Mwenda, 2015) concentrated on remittances. To the authors knowledge, only one study has compared some of these capital flows, namely FDI, FPI and cross-border interbank borrowing (Ocharo, Wawire, Kosimbei, & Ng'ang'a, 2014).

This chapter will contribute to the existing body of knowledge by investigating the relationship between private capital flows with remittances and foreign aid specifically in the Kenyan context. The main aim of this study is to investigate and determine the effect of five foreign capital flows, namely FDI, portfolio equity, debt liabilities, foreign aid and remittances, on the economic growth of Kenya over the past four decades; and to determine which benefits the economy most. Even though it is important to know the contribution of each of the five identified capital flows in the economy, it is absolutely imperative to know not only the relative contribution of each one of them to economic growth, but also the effect of the economy on each of these capital inflows. This will enable policymakers in Kenya know which specific capital flow is best to target.

In the next section, the literature relating to the theory of capital flows is looked at as well as reviews of existing literature relating to this study in Kenya. In section 6.3, the focus is on the foreign capital flows in the context of Kenya specifically. Section 6.4 presents the econometric procedure employed in the analysis, while section 6.5 presents and discusses the results. Section 6.6 summarises and concludes the paper with relevant recommendations.

6.2. EMPIRICAL EVIDENCE ON KENYA

The view that foreign capital flows could lead to economic growth and vice versa has attracted several empirical studies over the years. While many studies have focused on each type of capital flow as seen above, their results remain ambiguous and inconclusive. Very few attempts have actually been made at comparing the relative effects of the various capital flows to economic growth. Since the cross-sectional and panel analyses on African countries do not allow for country-specific inferences from the estimation, the focus is mainly on the few studies on Kenya using time series analysis that caters for the inherent flaws of the above-mentioned cross-country/ panel analyses.

Almost all the studies on Kenya adopted the ordinary least square (OLS) estimation technique and mostly focus on FDI (Nyamwange, 2009; Abala, 2014; Ngeny & Mutuku, 2014; Mwangi & Mwenda, 2015). These studies generally found that capital flows have a positive impact on the economic growth of Kenya (Table A6.1). For example, Nyamwange (2009) found GDP growth has a positive relationship with the FDI ratio and is statistically significant to FDI in the study from 1980 to 2006 using OLS estimation. As the economy improves, more FDI is attracted. Similarly, Abala (2014) concentrated on the determinants of FDI on Kenya for the period 1970 to 2010 using OLS estimation. It was concluded that market size, political stability, openness of the economy and infrastructure increase FDI in Kenya. Ngeny and Mutuku (2014) found a positive effect of FDI on growth, but a negative impact of FDI volatility on growth in Kenya for the period 1970 to 2011 using the OLS estimation and Exponential Generalised Autoregressive Conditional Heteroskedasticity (EGARCH) estimation techniques. They observed FDI volatility hinders long-run economic growth and therefore concluded that unstable inflows may inhibit investment, thereby affecting economic growth negatively.

Another time series study on Kenya was carried out by Amanja and Morrissey (2006), focusing exclusively on foreign aid. Using the Vector Autoregressive model (VAR) and Vector Error Correction Modelling (VECM) techniques, they found that foreign aid and private investment Granger cause output in Kenya for the period 1964 to 2002. They observed that aid in the form of net external loans has significant negative impact on long-run growth. Mwangi and Mwenda (2015) focused on remittances in Kenya and found that for the period 1993 to 2013, using OLS estimation and the Granger causality method, international remittance indicators were significant factors influencing economic growth. The only study found employing a combination of different capital flows restricted to Kenya was Ocharo et. al. (2014), which focused on the causality between private capital inflows (FDI, portfolio investment and cross-border interbank borrowing) and economic growth in Kenya for the period 1970 to 2010 using OLS estimation and the Granger causality test. They observed a positive effect of FDI, FPI and cross-border interbank lending on GDP growth; however, while FDI was statistically significant, FPI and cross-border interbank borrowing were statistically insignificant. FDI was found to lead to economic growth, while economic growth causes cross-border interbank borrowing in Kenya. The study employed the OLS estimation technique while this study uses the Johansen co-integration technique.

To the knowledge of the author, there is no study on Kenya that covers the relationship between private capital flows, remittances and foreign aid on economic growth. Furthermore, no study has yet compared the relative contribution of these foreign capital flows to economic growth. This chapter therefore goes beyond the only previous similar study (Ocharo et. al., 2014) by covering more capital flows to include remittances and foreign aid, adopting a more advanced estimation technique and extending the analysis to 2012, thereby providing the most current evidence in Kenya. The next section looks at foreign capital flows and economic growth in the context of the Kenyan economy.

6.3. OVERVIEW OF FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH IN KENYA

Kenya gained independence in 1963 and has since then operated a one-party state until 1991, when multiparty politics was introduced. Since the Kenyan transition to multiparty politics between 1991 and 1992, presidential elections have been characterised by violence. The tribal clashes that occurred in Kenya before the 1992 and 1997 elections have created fear in investors and might discourage increases in foreign capital flows into the country when elections are drawing near. The political violence in the country around 1992 might be partly responsible for the low GDP growth around this period (Figure 6.1). This period also coincided with the period during which Kenya liberalised its capital account and opened its economy to the international community.

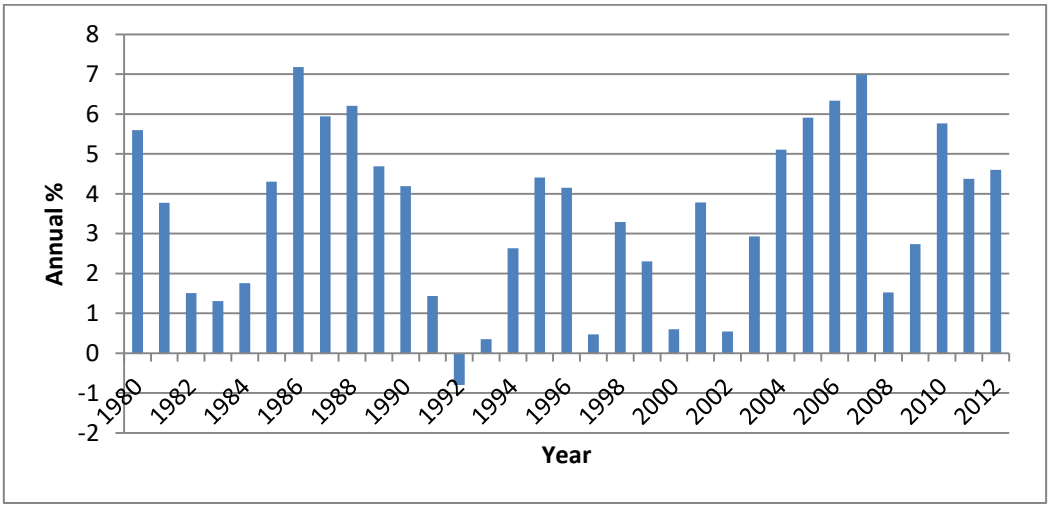


Figure 6.1: GDP growth rate in Kenya (1980-2012)

Source: Author's based on World Bank World Development Indicators database 2014

Kenya operated a closed capital account from 1970 to 1992 and therefore there was hardly any net portfolio flows during this period, except for 1975 to 1977 and in 1980. Kenya subsequently experienced rapid capital account liberalisation from 1991 to 1995, which included lessening constraints on foreign currency transactions and introducing foreign exchange bearer certificates of deposits (FEBCs) (Yoshino et al., 2015: 13). As at 1995, the remaining foreign exchange controls were abolished, although the Kenyan central bank retained the authority to license and control foreign exchange transactions. Restrictions on portfolio investments and capital account transactions were also removed, barring some exemptions as highlighted by Yoshino et al., (2015: 13) as "a ceiling on purchases of equity by non-residents (40% on aggregate, 5% for individual investors); requisite approval from the Capital Markets Authority prior to the issuance of securities locally by non-residents or abroad by residents as well as derivative securities; and prior government approval for the purchase of real estate".

Like many sub-Saharan African countries, Kenya has adopted policies aimed at attracting foreign capital. Besides liberalisation of its capital accounts, regional and economic integration policies and strategies were also adopted to increase foreign capital flows such as Kenya's membership of the East African Community (EAC) and the Common Market for Eastern and Southern Africa (COMESA) to encourage free trade between the regions.

Among the interventions embarked upon in Kenya were the launching of Vision 2030 in 2008, with the objective of achieving global competitiveness by accelerating transformation of the country into a rapidly industrialising middle-income nation by 2030, and gaining economic prosperity with a high quality of life. This national initiative has inspired greater commitment to attracting FDI, portfolio investments and remittances to assist in achieving higher economic growth rates in the region of 10% per annum. A trade block was also formed in 2012 to enable free trade, encourage foreign investments without barriers from Southern Africa, the Eastern bloc and Northern Africa to help the growth of the African countries involved. These initiatives and the various policies Kenya has adopted, such as the liberalisation of its capital accounts, are mainly aimed at attracting foreign capital.

Kenya experienced a sharp downward spiral in economic growth from late 1991, with GDP growth plummeting from 4.19% in 1990 to 1.44% in 1991 and then to -0.8% in 1992 (Figure 6.1) while inflation rose drastically from 17.78% in 1990 to 45.98% by 1993 (WDI, 2015). GDP growth receded to its lowest average level in the 1990s, recording 2.24% per year on

average for the decade. The period 1991 – 1995 was largely responsible for the low average growth rate recorded in the decade as a whole, with economic growth averaging a mere 1.61% per year for this period. GDP growth picked up notably in Kenya in the 2000s and by 2007, it stood at 6.99%. Following the onset of the global financial crisis in 2008, however, it again dropped to 1.53% as Kenya was a major hub for FDI in the Eastern African bloc. The political unrest following the 2007 elections in the country might also have been a contributing factor to the drastic decrease in GDP growth observed in 2008. Nevertheless, by 2010 economic growth had rebounded to 5.76% and has been fairly stable during the last five years up to 2014, averaging 5.15% per year over this period.

Looking back at Kenya's history, the country was one of the main destinations for foreign direct investment in East Africa in the 1970s. In recent years foreign capital in Kenya has been on the increase, especially remittances and FDI (Figure 6.2). For instance, remittances increased from US$570 million in 2006 to a substantial US$1.44 billion in 2014. FDI and portfolio equity also increased from US$50.7 million and US$1.8 million to US$944 million and US$954 million respectively over the same period. Debt liabilities increased from US$565 million in 2009 to US$1.977 billion in 2013, while ODA recorded the highest increase from US$946 million in 2006 to US$32.36 billion in 2013. Despite all these increases in capital flows, their contribution to GDP has been moderate (Figure 6.3). Only ODA showed a fairly high contribution to GDP, especially in the 1990s. GDP growth was also relatively high around the period of high ODA.

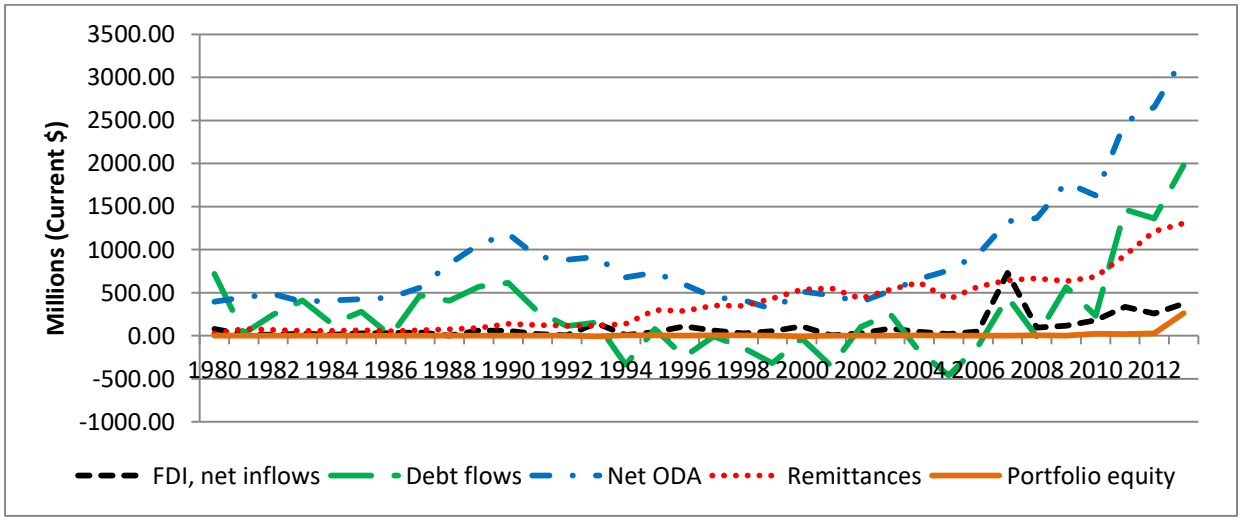


Figure 6.2: Foreign capital flows to Kenya in Millions (Current US$)

Source: Author's based on World Bank World Development Indicators database 2014

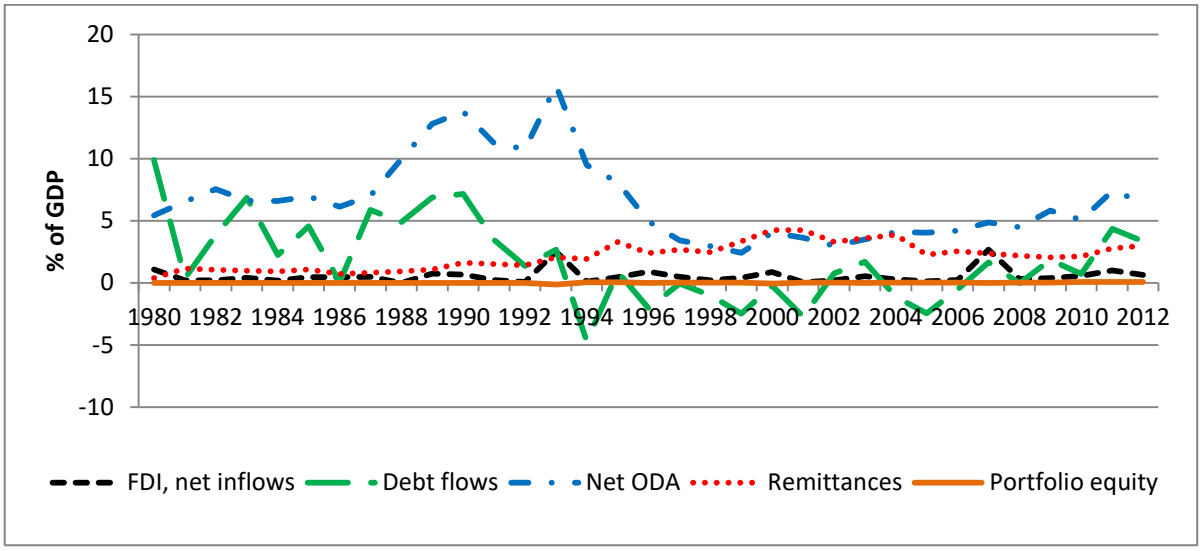


Figure 6.3: Foreign capital flows to Kenya as % of GDP (1980 - 2012)

Source: Author's based on World Bank World Development Indicators database 2014

Since FDI is mainly market-seeking in Kenya (Abala, 2014), it has the tendency of increasing GDP growth in the country. This type of FDI can be affected by political instability, high levels of crime and general insecurity of life. A series of security issues has been identified in Kenya which might have been responsible for the dip in FDI around incidents such as the United States embassy bombing of 1988, the 2002 Mombasa airport attack on an Israeli airplane as well as the Kikambala hotel bombing just after guests from Israel checked in. The relatively recent attacks in Kenya by the Islamic group Al-Shabab might also have resulted in a decrease in FDI into the country in 2012 (Figure 6.2). Furthermore, incidents such as the Westgate Shopping Mall shooting in 2013 and the Garissa University College attack early in 2015 might instil fear in foreign investors and deter them from establishing a footprint in Kenya, thereby reducing certain types of capital flows. This might also impact negatively on economic growth.

A preliminary investigation was done using a simple correlation, revealing that capital flows have been modest and shows some positive correlation over time with GDP per capita for the whole period of the study. The results from this preliminary study further show that ODA is the most correlated with GDP per capita compared to debt liabilities, which show the weakest correlation with GDP per capita over the period of observation. The relationship between

ODA and GDP in comparison to the other capital flows also shows a strong correlation (Table 6.1).

Table 6.1: Correlation of foreign capital flows and GDP per capita in Kenya

GDP per capita	Foreign direct investment	Portfolio equity	Debt liability	Remittances	Official development assistance
1970 – 1979	0.5668	-0.7425	0.7772	0.7699	0.6911
1980 – 1989	0.3433	0.2252	0.4525	0.3511	0.7186
1990 – 1999	-0.1623	-0.1524	0.7952	-0.4512	0.7118
2000 – 2009	0.5505	0.3099	0.4252	0.6555	0.9360
2010 – 2014	0.8318	0.8711	0.8105	0.9035	0.8965
Total	0.6280	0.6267	0.5803	0.6946	0.8048

Source: Author's calculations from World Bank World development indicators 2015

The decade-by-decade analysis, however, shows a different story with negative and low correlation of some capital flows. For instance, looking at the 1990s, FDI, portfolio equity and remittances showed negative correlations with FDI and portfolio equity having weak correlations. There is therefore the need to test empirically the contribution of these capital flows to economic growth. It is against this background that the econometric procedure adopted in this chapter is explored in the next section.

6.4. EMPIRICAL ANALYSIS

6.4.1. Data and methodology

This chapter analyses five capital flows and eight control variables. The capital flows are all expressed as a percentage of GDP and converted to their natural logarithm (LN) form, with the exception of remittances and portfolio equity stock due to their small scale. The capital flows used in the estimation are FDI liability stock (FDIS), portfolio equity liability stock (PES), debt liability stock (DLS), remittances (REM) and foreign aid (ODA) (see section 3.4 in chapter 3 for details). The explanatory variables used are as stated in chapter 3 except for real effective exchange rate (REER) due to lack of data for Kenya.

6.4.2. Model specification and analytical framework

The model specification and analytical framework followed in this chapter are as presented in section 3.3 of chapter 3 which is a multivariate vector error correction model limited to three variables, thus using a trivariate model to avoid the problem of loss of degree of freedom where X_t = f(Y, CF, CV).

In addition to the analytical framework specified in chapter 3, two dummy variables were introduced, one at a time for all the models in the analysis. One dummy variable was used for election periods (DUMEP), as election periods after the change to multi-party state in Kenya has been characterised by violence. The other dummy variable was used for financial liberalisation (DUMFLK) effects. The dummy variable for election periods was used to capture the possible effect of the election years, pre- and post-election years in the country on foreign capital inflows, as election periods have been characterised by violence which might deter foreign investors around these periods. A value of 1 was assigned for the period of elections (usually every 5 years from 1992) and a value of 0 was assigned for the period before multi-party state and years between elections (1970 – 1990). It is expected that the years without elections will attract more capital flows than the election years. The dummy variable for financial liberalisation was used to capture the effect of financial liberalisation in the country. The variable takes a value of 1 after liberalisation (1989 - 2012) and a value of 0 before liberalisation (1970 - 1988). The period of financial liberalisation corresponds to period beginning with the introduction of financial sector reforms in Kenya.

To compare the result, the effect of each of the measures of capital flows was observed to determine which has the most and strongest effect on economic growth after controlling for the effects of the control variables. The *a priori* expectation of the control variables on capital flows and economic growth presented in chapter 3 also applies to Kenya.

6.4.3. Econometric procedure

The econometric procedure followed is as set out and well detailed in section 3.5 of chapter 3. After this process, two dummy variables were introduced, one at a time for all the models in the analysis. The error correction term was also reported as well as the adjusted R^2. The model was then tested for serial correlation in the lag length used in the VECM by using the residual serial correlation LM test to ensure no serial correlation of the variables which might distort the results of the estimations. A heteroskedasticity test was also performed for the model to be qualified as a good model.

6.5. EMPIRICAL RESULTS

The estimation analysis commenced with unit root tests. The variables were tested for unit root and stationarity. The ADF unit root was tested and reported in Table 6.2 as well as the break point unit root test reported in Table 6.3. It was observed that both or at least one of the tests indicate that all the variables are stationary at first difference I(1), The alternative tests for no unit root, the KPSS stationarity test (Table A6.2) and the Ng-Perron unit root test

(Table A6.3), were also conducted to ensure the robustness of the result. From this, the Johansen co-integration test can be done since the degree of integration of most variables is I(1). The I(0) variable was still included in the analysis as it has been shown from studies that the variables might be important in economic theory (Harris, 1995).

Table 6.2: ADF Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	Trend	1	-2.66	0	-5.09***	I(1)
LNDLS	Trend	0	-1.21	0	-6.02***	I(1)
LNFDIS	Trend	0	-3.42*	0	-6.34***	I(1)
LNODA	Intercept	0	-1.72	0	-6.34***	I(1)
PES	Trend	9	4.86	9	-1.41	
REM	Trend	0	-2.39	0	-7.82***	I(1)
LNDI	Intercept	0	-3.00**	1	-6.34***	I(0)
LNEXP	Intercept	0	-2.77*	0	-6.30***	I(1)
LNFD	Intercept	0	-2.72*	0	-5.73***	I(1)
LNGC	Intercept	0	-2.3	0	-6.51***	I(1)
LNIMP	Intercept	0	-2.78*	0	-8.70***	I(1)
LNINF	Intercept & Trend	1	-2.09	0	-3.82**	I(1)
LNPC	Trend	0	-2.01	0	-5.66***	I(1)
LNXM	Intercept	0	-2.84*	0	-7.55***	I(1)

Notes: I(0) – degree of integration at level; I(1) – degree of integration at first difference. *, **, and *** – denotes the rejection of the null hypothesis of unit root at 10%, 5% and 1% level of significance respectively

Source: Computed by author

Table 6.3: Breakpoint Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	Trend	1	-3.64	3	-6.46***	I(1)
LNDLS	Trend	0	-3.08	0	-6.91***	I(1)
LNFDIS	Intercept & Trend	0	-3.8	0	-6.37***	I(1)
LNODA	Intercept	0	-2.87	0	-6.86***	I(1)
PES	Intercept & Trend	9	-3.54	8	-13.81***	I(1)
REM	Trend	0	-3.52	0	-8.04***	I(1)
LNDI	Intercept	1	-4.86*	0	-6.98***	I(1)
LNEXP	Intercept	0	-3.03	0	-7.19***	I(1)
LNFD	Intercept	0	-4.11	0	-7.04***	I(1)
LNGC	Intercept	9	-6.12***	1	-6.61***	I(0)
LNIMP	Intercept	0	-4.74*	0	-8.73***	I(1)
LNINF	Intercept & Trend	3	-4.45	0	-5.42***	I(1)
LNPC	Trend	6	-3.95	0	-6.47***	I(1)
LNXM	Intercept	0	-3.66	0	-8.02**	I(1)

Notes: I(0) – degree of integration at level; I(1) – degree of integration at first difference. *, **, and *** – denotes the rejection of the null hypothesis of unit root at 10%, 5% and 1% level of significance respectively

Source: Computed by author

The results of the deterministic trend assumptions are reported in Table 6.4. The results show if the variables have a trend, an intercept, both or neither to determine if to include trends or intercepts in the models. It was observed that four variables showed trend stationary while seven variables indicated intercept only. The remaining three variables had both trend and intercept.

Table 6.4: Test of deterministic trend assumption

Variables	Intercept only	Stochastic trend	Deterministic trend	Decision rule
LNYPCK	1.608	2.655**	2.197**	Trend
LNDLS	1.111	1.520	-1.953**	Trend
LNFDIS	1.995*	3.284***	2.795***	Intercept and trend
LNODA	1.769*	1.705	-0.275	Intercept
PES	-6.114***	-8.615***	2.440**	Intercept and trend
REM	1.595	0.474	1.877*	Trend
LNDI	3.001***	3.184***	-1.155	Intercept
LNEXP	2.767***	2.753***	-0.567	Intercept
LNFD	2.763***	2.682**	0.411	Intercept
LNGC	2.303**	2.524**	-1.034	Intercept
LNIMP	2.785***	3.135***	1.552	Intercept
LNINF	2.788***	0.681	2.009**	Intercept and trend
LNPC	1.514	2.092**	1.424	Trend
LNXM	2.850***	2.805***	0.595	Intercept

Source: Computed by author

Johansen co-integration was performed after the lag length selection. The models with co-integration were reported with most of the models having at least one co-integrating equation. The results of the trace statistics and max-Eigen statistics are reported in Table 6.5 (see table A6.4 of appendix for full test results). A total of 40 models were estimated, 8 for each of the 5 capital flows. Most of the models were found to have at least one co-integrating relation, which shows that a long-run relationship exists between them. Of all the capital flows, it was only remittances with the model that had private credit (LNPC) as control variable that did not indicate any co-integrating relation and therefore was not reported. All the other measures of capital flows produced co-integrating relation in the models and were reported accordingly.

Table 6.5: Summary of Johansen Co-integration test results: VAR = {Y, CF, CV}: Kenya

CF Variables	DLS		FDI		PES		ODA		REM	
CV	Trace	Max	Trace	Max	Trace	Max	Trace	Max	Trace	Max
LNDI	1	1	1	2	1	1	1	1	1	1
LNEXP	1	0	1	1	1	1	0	1	1	0
LNFD	1	1	1	2	1	1	0	1	1	1
LNGC	1	1	1	1	1	0	1	1	1	1
LNIMP	1	1	1	1	1	1	1	1	0	1
LNINF	1	0	1	1	1	0	1	1	1	1
LNPC	2	1	1	1	1	1	1	0	X	X
LNXM	1	1	1	1	1	1	1	1	1	1

Notes: 0 represents no co-integrating relation; 1 and 2 represents one and two co-integrating relations respectively; while X represents model with no report due to poor residual diagnostic test result.

Source: Computed and compiled by author

The weak exogeneity test was further conducted and both the bi-directional causality between economic growth and capital flow, and the unidirectional causality from either economic growth to capital flow or from capital flow to economic growth were explored. The results reveal that the causality between economic growth and capital flow in Kenya was mostly unidirectional except for a few models that showed bi-directional causality involving the control variables (exports, imports, and openness to trade) for official development assistance; exports for remittances, imports for portfolio equity stock and government consumption for foreign direct investment. There was no bi-directional causality between the capital flow, debt liabilities and economic growth. The weak exogeneity test is reported in Table 6.6.

Table 6.6: Weak exogeneity test results

								Causality between Y and CF		
Variables					Weak Exogeneity test			Null Hypothesis		
CF	CV	Obs	K	A	Y	CF	CV	Y↔CF	Y→CF	Y←CF
		Debt Stock								
LNDLS	LNDI	42	4	4	1.52[0.22]	1.58[0.21]	0.08[0.77]	No	Yes	No
	LNEXP	42	3	4	1.52[0.22]	9.27[0.00]	0.08[0.78]	No	Yes	No
	LNFD	42	4	4	1.41[0.24]	8.58[0.00]	8.81[0.00]	No	Yes	No
	LNGC	42	4	4	2.44[0.12]	5.41[0.02]	7.62[0.01]	No	Yes	No
	LNIMP	42	3	4	1.50[0.22]	10.40[0.00]	0.09[0.76]	No	Yes	No
	LNINF	40	2	4	1.79[0.18]	13.89[0.00]	5.80[0.02]	No	Yes	No

	LNXM	42	3	4	1.75[0.19]	8.77[0.00]	0.13[0.72]	No	Yes	No
		Foreign direct investment stock								
LNFDIS	LNDI	42	4	4	1.03[0.31]	13.35[0.00]	2.83[0.09]	No	Yes	No
	LNEXP	42	3	4	0.32[0.57]	7.10[0.01]	0.03[0.87]	No	Yes	No
	LNFD	42	4	4	1.82[0.18]	10.51[0.00]	0.04[0.84]	No	Yes	No
	LNGC	42	2	4	7.16[0.01]	0.43[0.05]	1.06[0.30]	Yes	Yes	Yes
	LNIMP	42	3	4	1.33[0.25]	12.06[0.00]	0.24[0.62]	No	Yes	No
	LNINF	40	2	4	1.63[0.20]	21.66[0.00]	1.72[0.19]	No	Yes	No
	LNPC	42	4	4	2.07[0.15]	12.11[0.00]	0.37[0.54]	No	Yes	No
	LNXM	42	3	4	0.95[0.33]	10.77[0.00]	0.00[0.98]	No	Yes	No
		Portfolio equity stock								
PES	LNDI	35	4	4	0.62[0.43]	4.14[0.04]	3.97[0.05]	No	Yes	No
	LNFD	35	3	4	6.89[0.01]	0.15[0.70]	16.43[0.00]	No	No	Yes
	LNIMP	35	2	4	7.85[0.01]	3.48[0.06]	4.33[0.04]	Yes	Yes	Yes
	LNINF	35	3	4	9.38[0.00]	0.62[0.43]	0.09[0.76]	No	No	Yes
	LNPC	35	3	4	30.34[0.00]	0.01[0.93]	0.57[0.45]	No	No	Yes
	LNXM	35	3	4	6.35[0.01]	0.30[0.59]	2.20[0.14]	No	No	Yes
		Official development assistance								
LNODA	LNEXP	43	2	4	13.37[0.00]	10.38[0.00]	0.53[0.47]	Yes	Yes	Yes
	LNFD	42	4	4	1.13[0.29]	12.67[0.00]	6.66[0.01]	No	Yes	No
	LNIMP	43	4	4	7.13[0.01]	6.53[0.01]	15.83[0.00]	Yes	Yes	Yes
	LNINF	40	2	4	2.33[0.13]	12.33[0.00]	1.51[0.22]	No	Yes	No
	LNPC	42	4	4	0.98[0.32]	6.15[0.01]	1.85[0.17]	No	Yes	No
	LNXM	43	4	4	9.18[0.00]	6.56[0.01]	4.68[0.03]	Yes	Yes	Yes
		Remittances								
REM	LNDI	42	4	4	4.49[0.03]	2.30[0.13]	7.64[0.01]	No	No	Yes
	LNEXP	42	3	4	2.82[0.09]	2.83[0.09]	2.73[0.09]	Yes	Yes	Yes
	LNFD	42	4	4	5.41[0.02]	0.14[0.71]	0.91[0.34]	No	No	Yes
	LNGC	42	4	4	13.64[0.00]	0.21[0.65]	3.93[0.05]	No	No	Yes
	LNIMP	42	3	4	5.61[0.02]	1.67[0.20]	3.81[0.05]	No	No	Yes
	LNINF	40	3	4	11.57[0.00]	0.63[0.43]	1.86[0.17]	No	No	Yes
	LNPC	42	4	4	12.19[0.00]	0.08[0.78]	4.56[0.99]	No	No	Yes
	LNXM	42	4	4	11.23[0.00]	0.80[0.37]	2.81[0.09]	No	No	Yes

Notes: The variables are as defined in Table 1 of the appendix. Where a 'Yes' is indicated in the first column, Y↔CF, this signifies a bi-causality between Y and CF, otherwise, 'No' is indicated where the causality is not bi-directional. The 2nd column, Y→CF, represents causality from Y to CF meaning that Y influences the corresponding CF while the 3rd column, Y←CF, represents causality from CF to Y indicating that the corresponding capital flow is responsible for Y. The values in parenthesis [ ] represents probabilities.

Source: Computed and compiled by author

In the models reported, the causality between economic growth and the corresponding capital flow was established. For debt liabilities, the results suggest that there is no bi-directional causality but unidirectional causality which runs only from economic growth to debt liabilities in all the models tested. There was no case of causality running from debt liability to economic growth, which indicates that an increase in GDP per capita causes an increase in debt liability stock in Kenya. Unidirectional causality stemming mainly from economic

growth to foreign direct investment was also observed in almost all the models, except for the model with government consumption (LNGC) as control variable which shows a bi-directional causality from foreign direct investment to economic growth and vice versa. This finding corroborates the work of Ocharo et al. (2014), which found unidirectional causality from economic growth to cross-border interbank borrowing in Kenya and unidirectional causality from foreign direct investment to economic growth.

Remittances, on the other hand, indicated the opposite, where unidirectional causality runs from remittances to economic growth in Kenya in almost all the models except for one model (with the control variable exports (LNEXP)), which shows bi-directional causality. The observation so far shows that while remittances cause growth in the economy, economic growth then causes debt liability stock and foreign direct investment in Kenya. For foreign aid (LNODA), it was observed that the relationship between economic growth and foreign aid is mixed with bi-directional causality present in three of the models, while the remaining three models show unidirectional causality from economic growth to foreign aid. Portfolio equity also indicates a mixture of relationships with one model showing bi-directional causality (with the control variable imports). Unidirectional causality was observed from economic growth to portfolio equity in one model while causality running from portfolio equity to economic growth was observed in four models. This point to the fact that portfolio equity mainly causes economic growth in Kenya.

So far, evidence of a long-run relationship between economic growth and capital flows was observed in Kenya. With this, the magnitude and sign of the causal effect was further explored. The slope coefficients of the estimated models and the error correction terms are recorded in Table 6.7. Residual diagnostic tests were conducted, and the LM-statistics from the serial correlation test and the probability are also reported. Where the probability was above 10% significance level (which signifies that the null hypothesis of no serial correlation at lag order cannot be rejected), it was taken that the model had passed the serial correlation test. The heteroscedasticity test was then also performed. Here, the chi-square and probability values were reported and the model had to pass this test with a probability level above 10% as well for it to be qualified as a good model.

The explanatory power of the model, as evidenced by the adjusted R^2 values are relatively moderate with over 20% in all the models reported, which shows the degree of reliability that

may be placed on the model. The results reported in table 6.7 are the models that passed all these tests.

From the results it is observed that remittances show a negative but significant influence on economic growth. Remittances were seen as a negative function of economic growth with all elasticities having low values ranging from minus 0.04 to minus 0.09. This was also statistically significant at a 1% level of significance for all models. The speed of adjustment ranging from 26% to 85% per year from the long-run equilibrium value for remittances was also quite high, with most values skewed towards the upper part as can be seen from the error correction term. This shows a fast speed of adjustment. The explanatory powers for the remittances models are also relatively high with at least 40% for all the models as shown in the adjusted R^2 value. The exchange rate in Kenya could have also contributed to the negative relationship existing between economic growth and remittances in Kenya.

Some of the control variables were not significant here such as financial development, imports, and private credit, which explains that the level of financial development, imports, and private credit respectively do not affect economic growth in Kenya significantly.

A recent study of international remittances on economic growth in Kenya by Mwangi and Mwenda (2015) revealed a different result, showing remittances positively and significantly influence economic growth in Kenya. Such opposing findings might be attributed to Mwangi and Mwenda's use of OLS estimation technique, and their measure of economic growth and remittances (growth of real per capita GDP and real per capita international remittances respectively). With the introduction of a dummy variable for election periods in Kenya after the change to multi-party state, it was observed that the dummy variable (DUMEP) was not significant in any of the models for remittances (Table A6.5). The financial liberalisation dummy variable (DUMFLK) was however significant where government consumption and private credit were included in the models (Table A6.6).

Table 6.7: Long-run parameters: Slope Coefficients: Kenya

Y = LNYPCK						Slope Coefficients						
CF	CV	Obs	K	A	Intercept	Y	CF	CV	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock										
LNDLS	LNEXP	42	3	4	-50.18	11.10(3.09)***		-4.01(-3.07)***	-0.12(-4.23)***	0.40	9.67[0.38]	74.37[0.76]
	LNIMP	42	3	4	-19.59	5.86(4.08)***		-3.63(-5.37)***	-0.30(-4.37)***	0.43	9.89[0.36]	83.32[0.50]
	LNXM	42	3	4	-32.77	8.50(3.49)***		-3.71(-3.41)***	-0.18(-4.21)***	0.41	11.90[0.22]	80.55[0.59]
		Foreign direct investment stock										
LNFDIS	LNDI	42	4	4	-5.29	1.04(1.38)		0.30(0.58)	-0.67(-4.52)***	0.31	7.04[0.63]	112.16[0.68]
	LNEXP	42	3	4	-4.79	0.92(1.43)		0.33(1.47)	-0.55(-3.62)***	0.24	10.43[0.32]	80.79[0.58]
	LNFD	42	4	4	-4.74	0.95(1.21)		0.23(0.59)	-0.69(-4.84)***	0.37	7.56[0.58]	117.83[0.54]
	LNGC	42	2	4	2.76		0.37(3.34)***	0.92(4.47)***	-0.20(-3.29)***	0.53	10.05[0.35]	50.53[0.37]
	LNIMP	42	3	4	-5.42	1.36(1.67)		-0.29(-0.75)	-0.47(-4.03)***	0.29	6.70[0.67]	97.25[0.15]
	LNINF	40	2	4	-2.39	0.70(1.42)		-0.15(-1.05)	-0.72(-5.99)***	0.51	5.33[0.80]	60.47[0.11]
	LNPC	42	4	4	-4.49	1.18(1.93)*		-0.28(-1.27)	-0.70(-4.15)***	0.33	6.55[0.68]	112.37[0.68]
	LNXM	42	3	4	-5.84	1.29(1.65)		-0.03(-0.08)	-0.48(-3.88)***	0.28	12.00[0.21]	92.27[0.25]
		Portfolio equity stock										
PES	LNDI	35	4	4	140.29	-37.85(-3.13)***		31.33(4.61)***	-0.08(-2.43)**	0.30	4.56[0.87]	124.90[0.36]
	LNFD	35	3	4	17.43		0.32(3.71)***	-2.92(-9.30)***	-0.04(-2.56)**	0.29	5.92[0.75]	74.51[0.76]
	LNIMP	35	2	4	7.83		0.15(4.43)***	-0.45(-4.03)***	-0.19(-3.22)***	0.41	11.11[0.27]	45.94[0.56]
	LNINF	35	3	4	6.20		0.05(1.56)	-0.13(-2.64)**	-0.46(-5.29)***	0.56	7.17[0.62]	97.36[0.15]
	LNPC	35	3	4	6.90		0.10(6.80)***	-0.21(-5.49)***	-0.47(-6.31)***	0.67	6.35[0.70]	84.31[0.47]
	LNXM	35	3	4	7.56		0.12(4.23)***	-0.31(-4.31)***	-0.36(-3.75)***	0.42	9.56[0.39]	91.73[0.26]
		Official development assistance										
LNODA	LNEXP	43	2	4	5.61		0.06(3.26)***	0.14(2.30)**	-0.25(-3.98)***	0.60	9.02[0.44]	52.58[0.30]
	LNFD	42	4	4	-158.61	32.99(4.93)***		-12.03(-3.94)***	-0.14(-3.67)***	0.32	10.05[0.35]	111.14[0.71]
	LNIMP	43	4	4	5.41		0.08(13.11)***	0.18(6.30)***	-0.36(-2.54)**	0.42	7.17[0.62]	129.83[0.25]
					-67.61	12.51(14.28)***		-2.30(-6.18)***	-0.31(-2.38)**	0.28	7.17[0.62]	129.83[0.25]

	LNINF	40	2	4	59.01	9.70(3.55)***		-2.52(-2.91)***	-0.27(-4.71)***	0.35	8.55[0.48]	44.21[0.63]
	LNPC	42	4	4	-50.56	9.31(6.19)***		-1.87(-3.56)***	-0.50(-3.00)***	0.20	13.93[0.12]	106.52[0.81]
	LNXM	43	4	4	5.39		0.07(10.69)***	0.16(5.22)***	-0.43(-3.03)***	0.44	8.69[0.47]	129.74[0.26]
		Remittances										
REM	LNDI	42	4	4	7.16		-0.09(-6.79)***	-0.32(-2.59)**	-0.33(-2.62)**	0.47	3.08[0.96]	115.36[0.60]
	LNEXP	42	3	4	6.71		-0.08(-7.24)***	-0.16(-2.89)***	-0.26(-2.26)**	0.40	6.16[0.72]	71.91[0.82]
	LNFD	42	4	4	5.83		-0.05(-5.38)***	0.10(1.55)	-0.57(-3.91)***	0.53	6.71[0.67]	117.41[0.55]
	LNGC	42	4	4	5.69		-0.06(-8.90)***	0.17(3.30)***	-0.85(-5.72)***	0.68	6.89[0.65]	113.51[0.65]
	LNIMP	42	3	4	6.58		-0.07(-6.98)***	-0.12(-1.65)	-0.33(-2.83)***	0.44	13.96[0.12]	87.63[0.37]
	LNINF	40	3	4	6.18		-0.04(-4.89)***	-0.06(-1.85)*	-0.61(-5.00)***	0.64	6.83[0.65]	93.57[0.22]
	LNPC	42	4	4	6.08		-0.06(-7.73)***	0.04(0.93)	-0.60(-4.68)***	0.60	5.54[0.78]	111.36[0.70]
	LNXM	42	4	4	6.66		-0.07(-8.60)***	-0.12(-2.38)**	-0.55(-3.92)***	0.55	5.81[0.76]	118.94[0.51]

Notes: The variables are as defined in Table 1 of the appendix. *, **, and *** denotes significance at 10%, 5% and 1% respectively. The values in parenthesis [ ] represents probabilities while the values in ( ) represents t-values.

Source: Computed and compiled by authors.

Debt liability, on the other hand, does not influence economic growth. Rather, economic growth leads to debt liabilities. This shows a positive relationship which is statistically significant at a 1% significance level and elasticity ranging from 5.86 to 11.10 for all the models that passed all the residual diagnostic tests. The speed of adjustment from the error correction term also ranges from 12% to 30% per year, which is quite moderate. The explanatory power of the model was relatively large at 40% as indicated by the adjusted R^2 value. The dummy variables for both financial liberalisations in Kenya and election periods after change to multi-party state were not significant at all, although debt liabilities remained statistically significant in all the models. This implies that the violence during election periods and financial liberalisation periods in Kenya do not affect debt liabilities. An earlier study by Were (2001) however revealed a negative impact of debt accumulation on economic growth of Kenya.

For foreign direct investment, it was observed that economic growth leads to foreign direct investment although the results indicate all the models were not statistically significant and all models showed positive relationship. The degree of elasticity also ranged from 0.70 to 1.36. The only model showing that FDI has a positive and statistically significant (1% level) influence on economic growth was when the government consumption control variable was used in the estimation, and this was the only model indicating that foreign direct investment causes economic growth. This is consistent with previous findings of the study by Ocharo et al. (2014), which observed both a positive and statistically significant influence of FDI on economic growth in Kenya. Ngeny and Mutuku (2014) also found that FDI has a positive influence on economic growth in Kenya. With the introduction of financial liberalisation dummy variable, the dummy variable was significant only where domestic investment (LNDI) was present in the model while the dummy variable for election periods was not significant at all for foreign direct investment.

The third panel in Table 6.7 presents the results for portfolio equity, which revealed a positive and significant impact (all at a 1% level of significance) on economic growth in Kenya for the period under study. The degree of elasticity ranged from 0.05 to 0.32, while the speed of adjustment to long-run equilibrium ranged from 4% to 47% per year. With the only model that indicates that economic growth leads to portfolio equity, quite high negative elasticity was observed at minus 37.85 and speed of adjustment of 8%. This shows that portfolio equity leads to economic growth more significantly. While the introduction of financial liberalisation dummy variable, the dummy variable was significant for only inflation

in all the models for portfolio equity, the dummy variable for election periods was significant only where domestic investment was present in the model which was the only model normalised on portfolio equity.

Foreign aid presents a mixed result with foreign aid leading to economic growth in three of the models, while the remaining four models show economic growth leading to foreign aid. All models have a positive sign showing a positive relationship with economic growth and statistically significant at a 1% significance level. With the degree of elasticities ranging from 0.06 to 0.08 for the coefficient of foreign aid (LNODA), while that of economic growth ranges from 9.31 to 32.99. With the introduction of dummy variables for election periods and financial liberalisation, the dummy variables were significant for imports; and exports and inflation respectively.

6.6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The chapter explored the relative contribution of the five major capital flows in Kenya to economic growth. The causal effect between these capital flows (foreign direct investment, foreign portfolio equity, debt liabilities, foreign aid and remittances) and economic growth were observed. Furthermore, the magnitude and sign of the long-run relationship between the identified capital flows were investigated to determine which one contributes most to the economy.

The results obtained revealed evidence of only unidirectional causality from economic growth to debt liabilities and no case of bi-directional causality in all the models reported for debt liabilities. Unidirectional causality was also observed from economic growth to foreign direct investment in almost all the models except one model with the government consumption control variable showing causality from foreign direct investment to economic growth. On the other hand, remittances reveal a unidirectional causality running from remittances to economic growth in almost all the models except for the model with export as control variable indicating bi-directional causality. Foreign aid indicates a mixture of relationship with evidence of bi-directional causality in three of the models and unidirectional causality running from economic growth to foreign aid in the remaining three models reported. Evidence of bi-directional causality was observed for portfolio equity and unidirectional mostly from portfolio equity to economic growth in four of the models reported with only one model showing unidirectional causality from economic growth to portfolio equity.

From the analysis, it can be concluded that only portfolio equity and foreign aid had a positive effect on economic growth. These two capital flows also have the most significant impact on economic growth. Foreign direct investment, to a limited extent, exacts a positive effect on growth. If policies are to be aimed at stimulating growth in the economy and attracting foreign capital, Kenya is best advised to focus more on attracting more portfolio equity, foreign aid and to a lesser extent, foreign direct investment through policies that promote the inflow of these types of capital flows. With the introduction of dummy variables for election periods characterised by violence after the change to multi-party state in 1991 in Kenya, it was observed that there was no significant change to the capital flows and the dummy variable was not significant at all for debt liabilities and foreign direct investment. The dummy variable was significant only for one model in portfolio equity, one model for remittances and two models for foreign aid. The recent trade bloc established between North Africa, East Africa and South Africa would help stimulate investment into Kenya, being a major player in the Eastern African bloc. Receiving foreign aid especially those that are geared towards infrastructure projects will help stimulate economic growth. Such foreign aid depends on a stable political environment and a good relation with donor partners. With financial liberalisation dummy variable, the dummy variable was not significant for debt liabilities and portfolio equity implying that financial liberalisation did not affect the contribution of debt liabilities and portfolio equity to economic growth in Kenya.

CHAPTER SEVEN

CAPITAL FLOWS AND ECONOMIC GROWTH IN MAURITIUS

7.1. INTRODUCTION

Foreign capital inflow has played a significant role in the economic growth of developing countries, and Mauritius is no exception. Mauritius liberalised its financial systems in the early 1980s along with many other African countries in an attempt to attract foreign capital. The export processing zone (EPZ) was established in 1970 to attract export oriented FDI into Mauritius (Sooreea-Bheemul & Sooreea, 2012). The establishment of the EPZ has helped the Mauritian economy in its growth and development (Durbarry, 2004). The economy has been growing steadily at an average of over 4 percent annually for the past three decades; however, in the wake of the recent global financial crisis, the economy has been growing below its potential of over 4 percent since 2011 (World Bank, WDI 2015).

With the pursuit of the present agenda of the government of Mauritius to transform Mauritius into a high-income country (HIC) by 2025 based on sustainably generated and equitably distributed growth, the dwindling economic growth has to be driven up urgently to achieve this. In spite of the crisis in the Eurozone, Mauritius has managed to avoid a recession despite Europe being its major trading partner. Nevertheless, the economic growth of Mauritius has been badly affected as the economy has slowed down and has been growing at an average of 3.2 percent for the three years until 2014, which is considered below its potential. According to IMF (2014), Mauritius could reach high-income status by 2021 if it keeps its economic growth rate at 5 percent. There is thus a pronounced need to achieve higher economic growth rates in the region of 5 percent per annum to achieve high-income status by the targeted time.

Considering that capital flows into Mauritius have historically been moderate, a notable increase in foreign direct investment and foreign portfolio investment has been observed in recent years. On the contrary, remittances – which have been historically high – have witnessed a decline in recent years. This observation with the present growth level raises a concern over which capital flow benefits the Mauritian economy and how to attract the right foreign capital flows. It also draws attention to which one of these capital flows is best to focus on given that their relative contribution to economic growth may not be the same since the effects of capital flows on economic growth depend on the type of foreign capital and the type of economy (Aizenman et al. 2013).

The available empirical literature focusing on Mauritius relating to capital flows and economic growth has limited the study to just foreign direct investment (Blin & Ouattara, 2009; Beghum, Sannassee, Seetanah & Lamport, 2011; Sooreea-Bheemul & Sooreea, 2012).

This chapter will therefore contribute to the existing body of knowledge by investigating the relationship between private capital flows and foreign aid specifically in the Mauritian context. The main aim of this chapter is to investigate and determine the effect of three prominent foreign capital flows, namely FDI, debt liabilities and foreign aid on the economic growth of Mauritius over the past four decades, and to determine which benefits the economy the most. Even though it is important to know the contribution of each of the three identified capital flows in the economy, it is absolutely imperative to know not only the relative contribution of each one of them to economic growth, but also the effect of the economy on each of these capital inflows based on the unique nature of the country. This will assist policymakers in Mauritius to know which specific capital flow is best to target to achieve a sustainable growth rate again in an attempt to meet its target of moving to the level of high-income country by 2025.

In the next section, the previous empirical studies on capital flows in Mauritius are reviewed. In section 7.3, the focus is on the foreign capital flows in the context of Mauritius specifically. Section 7.4 presents the econometric procedure employed in the analysis, while section 7.5 presents and discusses the results. Section 7.6 summarises and concludes the chapter with relevant recommendations.

7.2. EMPIRICAL EVIDENCE ON MAURITIUS

The studies on foreign capital flows and economic growth in Mauritius have so far been limited to foreign direct investment. The study on foreign direct investment and economic growth by Blin and Ouattara (2009) for the period 1975 to 2000 using the Auto-regressive distributed lag (ARDL) bounds test co-integration technique revealed that FDI exerted a highly significant positive impact on economic growth in Mauritius during the period of the study.

Another study on the determinants of foreign capital flows in Mauritius from 1976 to 2009 by Beghum et al. (2011) using a Vector Auto-regressive model (VAR) concluded that FDI inflows into Mauritius are explained by GDP, domestic investment, productivity and openness are positively correlated, while the real effective exchange rate has a negative impact on the level of FDI inflows.

The study by Sooreea-Bheemul and Sooreea (2012) on FDI for the period 1970 to 2000, a period referred to as the 'Mauritian economic miracle' revealed that FDI stock – and not FDI inflows – led to the growth success in Mauritius. They concluded that the heavily FDI driven export sector was responsible for economic growth during the period. Their study emphasises the findings of Blin and Ouattara (2009), where FDI was observed to have a highly significant and positive impact on the economic growth of Mauritius.

These studies emphasise the growth links between economic growth and FDI. There was, however, no study found on the effect of other capital flows and economic growth in Mauritius. This study therefore goes beyond foreign direct investment by including the main capital flows in Mauritius for which data are available, namely: foreign direct investment, debt liability stock and official development assistance. The record of portfolio equity and remittances data in Mauritius is not sufficient to run a meaningful time series estimation, therefore they were not considered in this study.

Previous studies on Mauritius have concentrated mainly on foreign direct investment. This chapter therefore adds to the existing body of knowledge by updating the study of capital flows in Mauritius. This is done by determining the context of foreign capital flows in Mauritius and by exploring the sectors to which FDI goes into. This study also extend the sample period to 2013 to cover the period subsequent to the 2008 financial crisis and give a more recent picture of the contribution of capital flows to the economy of Mauritius.

7.3. OVERVIEW OF FOREIGN CAPITAL FLOWS AND ECONOMIC GROWTH IN MAURITIUS

Mauritius is an island country formerly dependent on the export of sugar since gaining its independence from Britain in 1968. It was known as a mono-crop economy, exporting only sugar before it established its Export Processing Zone (EPZ) in 1970 to attract export-oriented FDI in the textile and tourism industries (Sooreea-Bheemul & Sooreea, 2012). The sugar and EPZ sectors helped the Mauritian economy to grow consistently since the 1970s. The economy has progressed over the years from a mono-crop economy dependent on the export of sugar to an economy known for tourism, attracting millions of tourists yearly. The Mauritian economy is now famous not only for sugar, but also as prominent exporter of non-traditional goods (textiles) and services (notably tourism and financial services). Tourism has led to growth and, in turn, a significant positive impact on economic development in Mauritius (Durbarry, 2004).

Looking at economic growth measured by the growth of the gross domestic product (GDP) annual growth rates, it has been relatively high in Mauritius averaging 4.46 percent between 1977 and 2014 (Figure 7.1). The country recorded high growth rates averaging 5.92 percent in the 1980s. The growth rate was also relatively high in the 1990s, averaging 5.16 percent over this decade. In the last couple of years following the global financial crisis, the economy has grown below its potential at less than 4 percent per year. Economic growth reduced from 5.5 percent in 2008 to 3.0 percent in 2009 before increasing again to 4.1 percent in 2010. In 2011, the economy grew by 3.9 percent before falling to 3.2 percent in 2012. It remained at 3.2 percent in 2013 and the economic growth stood at 3.6 percent as at 2014.

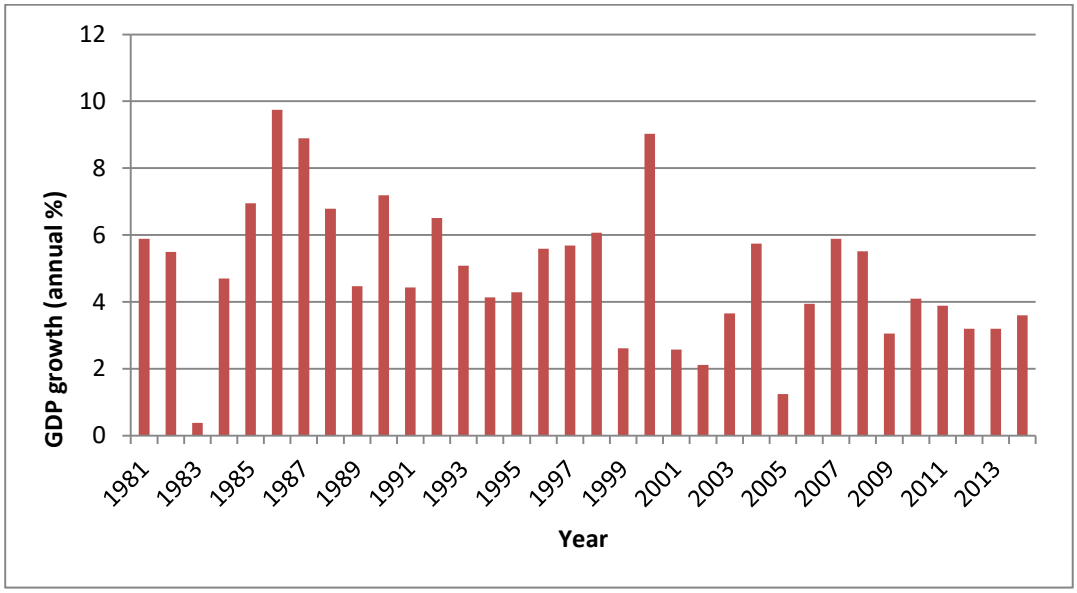


Figure 7.1: GDP growth rates (annual %) from 1981 – 2014

Source: Authors based on WDI database 2015

On the other hand, capital flows have been relatively moderate in Mauritius. Debt flows, which have been on a steady decrease in Mauritius since the mid-1980s, started to increase suddenly and rapidly from 2008 as can be seen from Figure 7.2. Figure 7.3 excludes debt flows, thus showing a clearer view of the other capital flows. Remittances as a percentage of GDP reduced, barely rising above 0.2 percent in the past decade (Figure 7.3). ODA also declined in the 1990s until 2006 and recently it is observed to be on the increase again. On the contrary, FDI started to increase around the same period remittances dropped. Portfolio equity, which recently started gaining recognition in Mauritius, is similarly on the rise.

In light of the present agenda of the government of Mauritius to transform the country into a high-income country by 2025 based on sustainably generated and equitably distributed growth, there has to be a focus on which capital flow contributes the most to the country's economic growth. For Mauritius to achieve this target within the stipulated time period, then the economy has to urgently change the present trajectory of economic growth. Although Mauritius has managed to avoid a recession in spite of the Eurozone crisis, its economic growth has tapered in recent years. According to the IMF (2014), Mauritius could reach high-income status by 2021 if it keeps the percentage growth rate at 5 percent which might be possible if the right foreign capital flows are concentrated on.

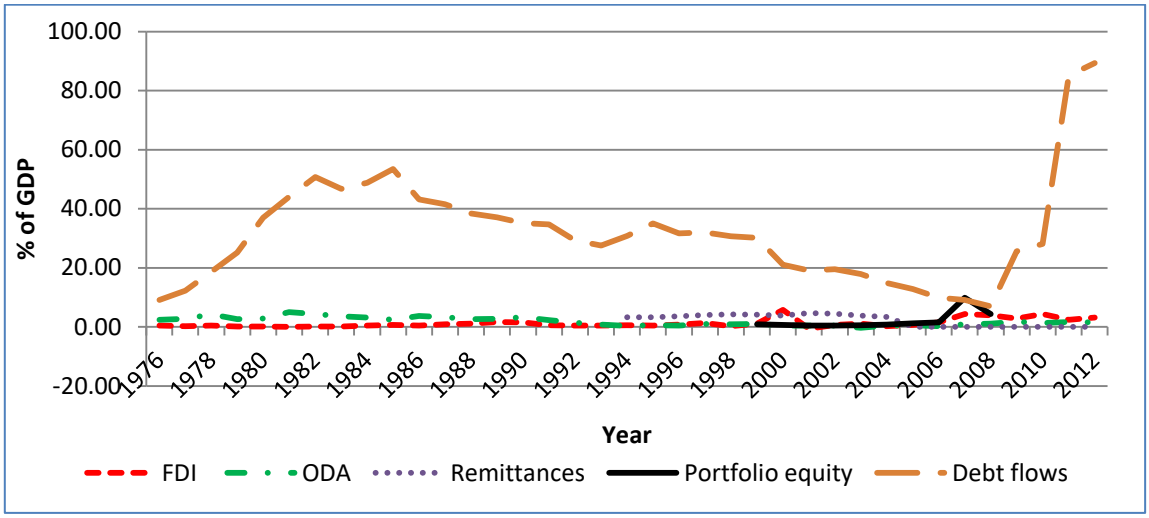


Figure 7.2: Capital flows as % of GDP in Mauritius (1976 - 2012) including debt flows

Source: Author's based on World Bank WDI, 2015

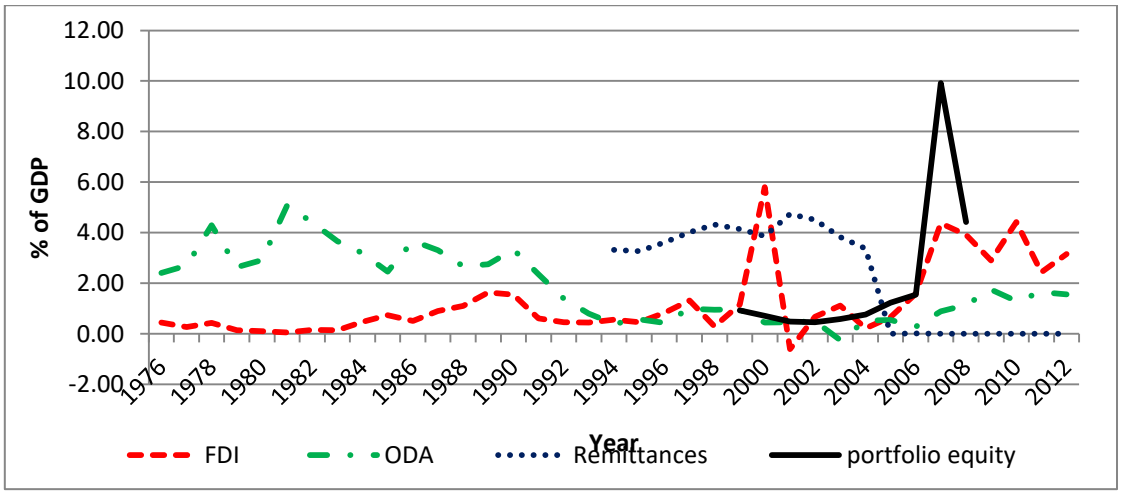


Figure 7.3: Capital flows as % of GDP in Mauritius (1976 - 2012) excluding debt flows

Source: Authors based on WDI database 2015

Despite Mauritius avoiding a recession, its current account deficit balance has increased from minus 4.2 percent of GDP in 2006, before the global financial crisis to minus 9.8 percent of GDP after the crisis, and it stood at minus 8.9 percent of GDP in 2013 (Table 7.1). This could be accounted for by the increase in the negative trade balance owing partly to a reduction in the export and import of goods.

Table 7.1: Current account (Percentage of GDP at current prices)

	2006	**2011**	**2013**
Trade balance	-16.2	-20.9	-19.0
Exports of goods	34.7	22.8	24.1
Imports of goods	50.9	43.7	43.1
Current account balance	**-4.2**	**-9.8**	**-8.9**

Source: Adapted from Kalumiya & Kannan, 2015

The European Union (EU) and South Africa are the major export markets for Mauritius, and with the effects of the global financial crisis on their economies, there was a knock-on effect on Mauritius, illustrated by a reduction in exports of goods and services from 60.43 percent of GDP in 2006 to 48.96 percent of GDP in 2009, in the wake of the global financial crisis. Accordingly, imports of goods and services reduced from 70.95 percent of GDP in 2006 to 58.32 percent of GDP in 2009, with India and China being its main sources of imports. As at 2013, the exports and imports of goods and services picked up to 54.28 percent and 66.50 percent of GDP respectively (World Bank, WDI 2015). Subsequently, there was an increase in debt stock of the country to fund government spending due to a reduction in FDI from its principal sources of France, South Africa and China.

In observing a simple correlation between capital flows and GDP per capita in Mauritius, one can see from Table 7.2 that almost all the capital flows were positively correlated with GDP per capita from 1976 to 2013, except remittances which showed a negative correlation. The other capital flows had a high and positive correlation between capital flows and GDP per capita, especially foreign direct investment which had the highest correlation with GDP per capita.

After the global financial crisis, the correlation between GDP per capita from 2008 to 2013 revealed remittances maintained a negative correlation, although remittances were positive correlated with GDP per capita before the global financial crisis. It was noticed that portfolio

equity changed to a low and negative correlation after the global financial crisis, while the correlation of foreign direct investment with GDP per capita, which showed the highest correlation for the total period, was quite low from 2008 to 2013. Official development assistance was observed to be negative between 1976 and 2007, but after 2008 a positive correlation is observed. The correlation of debt liabilities, however, increased and became quite high after the global financial crisis. There is therefore the need to test empirically the contribution of these capital flows to the economic growth of Mauritius to determine which contributes the most to economic growth. In addition, there is a need to determine if the global financial crisis has indeed affected the contribution of the different capital flows to Mauritian economic growth, and to what extent.

Table 7.2: Correlation of capital flows and GDP per capita in Mauritius (1976 – 2013)

GDP per capita	Foreign direct investment	Foreign portfolio equity	Remittances	Official development assistance	Debt liabilities
1976 – 2007	0.5722	0.6513	0.6513	-0.1884	0.6177
2008 – 2013	0.3084	-0.0029	-0.1506	0.5291	0.9409
1976 – 2013	0.8439	0.5083	-0.7872	0.6980	0.7364

Source: Author's calculations from World Bank WDI 2015

The success story of Mauritius moving from low-income status in the 1970s to upper-middle income status within a relatively short time has been attributed to sound macroeconomic policies, strong institutions (both in the public and private sectors), with exceptionally productive interaction between them, strong pro-trade orientation and liberal trade regime, all of which factors have led to the noticeable increase in economic growth (Zafar, 2011).

Mauritius has become a model country in sub-Saharan Africa to other developing economies as identified by the World Bank. The attributes of Mauritius, namely political stability, a strong institutional framework, open trade policies, a favourable regulatory environment and a low level of corruption existing are all lessons to be learnt from Mauritius by other developing African countries.

7.4. EMPIRICAL ANALYSIS

7.4.1. Model specification and analytical framework

The model specification and analytical framework followed in this chapter are as presented in section 3.3 of chapter 3, which is a multivariate vector error correction model limited to three

variables, thus using a trivariate model to avoid the problem of loss of degree of freedom where X_t = f(Y, CF, CV).

In addition to the analytical framework specified in chapter 3, a dummy variable was introduced for all the models in the analysis. The dummy variable (DUMGFC) was used to capture the possible effects of the recent global financial crisis on foreign capital inflows to the Mauritian economy. The variable takes a value of 1 after the global financial crisis (2008 – 2012) and a value of 0 before the global financial crisis (1976 – 2007). This was done as debt flows increased at an alarming rate from 2008 and portfolio equity dropped. There was also a noticeable decline in economic growth after 2008.

To compare the results, the effect of each of the measures of capital flows was observed to determine which has the most and strongest effect on economic growth after controlling for the effects of the control variables. The *a priori* expectations of the control variables on capital flows and economic growth as presented in table 3.1 of chapter 3 apply to Mauritius.

7.4.2. Data and methodology

The data and methodology employed in this chapter are as stated in chapter 3. However, due to a lack of data, only three capital flows (foreign direct investment, debt liabilities and official development assistance) were explored as the annual data for portfolio equity and remittances in Mauritius did not cover a sufficient number of years for a reasonable time series analysis. The explanatory variables used are also as stated in chapter 3, except for the real effective exchange rate (REER), which was excluded due to a lack of data for Mauritius.

7.4.3. Econometric procedure

The econometric procedure followed in this chapter is explained in chapter 3. After the process explained, a dummy variable (DUMGFC) capturing the effects of the global financial crisis on Mauritius was introduced into the model estimation. The error correction term was reported as well as the adjusted R^2. The models were then tested for serial correlation in the lag length used in the VECM by using the residual serial correlation LM test to ensure no serial correlation of the variables which might distort the results of the estimations. A heteroskedasticity test was also performed on each model to be qualified as a good model.

7.5. EMPIRICAL RESULTS

The estimation analysis begins with unit root tests. The variables were tested for unit root and stationarity. The ADF unit root was tested and reported in Table 7.3 as well as the break point unit root test reported in Table 7.4. It was observed that both or at least one of the tests

indicate that all the variables are stationary at first difference I(1), except two variables (LNINF and LNPC) which were stationary at level I(0). The two tests were conducted to ensure the robustness of the result. KPSS and Ng-Perron tests were also performed and reported in table A7.2 and A7.3 respectively. From this, the Johansen co-integration test can be done since the degree of integration of most variables is I(1). The I(0) variables were still included in the analysis as it has been shown from studies that it might be important in economic theory (Harris, 1995).

Table 7.3: ADF Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	Degree of Integration
LNYPCK	Trend	0	-2.31	0	-5.24***	I(1)
LNDLS	Intercept	3	-2.12	1	-4.42***	I(1)
LNFDIS	Trend	0	-0.92	0	-6.40***	I(1)
ODA	Trend	0	-2.53	0	-6.83***	I(1)
LNDI	Intercept	0	-2.28	0	-7.14***	I(1)
LNEXP	Intercept	0	-1.82	0	-6.06***	I(1)
LNFD	Trend	0	-2.34	0	-6.33***	I(1)
LNGC	Intercept	0	-2.39	1	-5.58***	I(1)
LNIMP	Intercept & trend	1	-3.11	0	-5.21***	I(1)
LNINF	Intercept	7	-4.42***	1	-3.17**	I(0)
LNPC	Trend	2	-5.00***	1	-5.32***	I(0)
LNXM	Intercept	1	-2.15	0	-5.56***	I(1)

Source: Computed and compiled by author

Table 7.4: Breakpoint Unit root test results

Series	Model	Lag length	Level	Lag length	1st difference	DI
LNYPCK	Trend	0	-2.556	0	-6.254***	I(1)
LNDLS	Intercept	2	-3.946	1	-7.100***	I(1)
LNFDIS	Trend	1	-9.261***	1	-9.086***	I(0)
ODA	Trend	9	-4.907**	0	-7.197***	I(0)
LNDI	Intercept	4	-4.347*	0	-7.130***	I(0)
LNEXP	Intercept	1	-2.944	0	-6.211***	I(1)
LNFD	Trend	0	-3.497	0	-7.789***	I(1)
LNGC	Intercept	1	-3.760	1	-6.625***	I(1)
LNIMP	Intercept & trend	1	-3.792	9	-6.214***	I(1)
LNINF	Intercept	7	-4.605**	6	-5.583***	I(0)
LNPC	Trend	2	-4.958***	1	-7.132***	I(0)
LNXM	Intercept	1	-3.374	0	-5.766***	I(1)

Source: Computed and compiled by author

The deterministic trend assumption was performed. The results confirm the existence of a trend, an intercept, both or neither in the variables and help to determine whether to include trends or intercepts in the models. The results are reported in Table 7.5.

Table 7.5: Test of deterministic trend assumption

Variables	Intercept	Stochastic trend	Deterministic trend	Decision rule
LNYPCK	-0.034	2.351**	2.383**	Trend
LNDLS	2.198**	1.676	1.128	Intercept
LNFDIS	0.443	-0.687	1.724*	Trend
ODA	1.180	2.198**	-1.873*	Trend
LNDI	2.261**	2.226**	0.170	Intercept
LNEXP	1.820*	1.750*	0.201	Intercept
LNFD	0.403	2.386**	2.357**	Trend
LNGC	2.398**	2.483**	0.805	Intercept
LNIMP	2.520**	3.115***	1.743*	intercept & trend
LNINF	5.537***	2.260**	1.025	Intercept
LNPC	-0.633	5.047***	5.309***	Trend
LNXM	2.152**	2.330**	0.927	intercept

Source: Computed and compiled by author

Johansen co-integration was performed after the lag length selection. The models with co-integration were reported, with most of the models having at least one co-integrating equation. The results of the trace statistics and max-Eigen statistics are reported in Table 7.6 (see table A7.4 of appendix for the full test results). A total of 24 models were estimated, 8 for each of the 3 capital flows. Most of the models were found to have at least one co-integrating relation, which shows that a long-run relationship exists between them.

Of all the capital flows, it was only debt liabilities (LNDLS) with financial development (LNFD) as control variable that did not indicate any co-integrating relation and therefore was not reported. All the other measures of capital flow produced co-integrating relation in the models and were reported accordingly.

Table 7.6: Summary of Johansen co-integration test results: VAR = {Y, CF, CV}: Mauritius

CF Variables	DLS		FDI		ODA	
CV	Trace	Max	Trace	Max	Trace	Max
LNDI	2	1	1	1	1	1
LNEXP	2	1	1	1	1	1
LNFD	X	X	1	1	1	1
LNGC	1	1	1	1	2	1
LNIMP	1	0	1	1	1	1
LNINF	1	1	1	1	1	1
LNPC	1	1	1	1	2	1
LNXM	2	1	1	1	2	1

Notes: 0 represents no co-integrating relation; 1 and 2 represents one and two co-integrating relations respectively; while X represents model with no report due to poor residual diagnostic test result.

Source: Computed and compiled by author

The weak exogeneity test was conducted and the causality between economic growth (Y) and capital flow (CF) was explored. The results reveal that the causality between economic growth and capital flows in Mauritius is mostly unidirectional from capital flows to economic growth except for two models: one with the control variable imports (LNIMP) for debt liabilities (LNDLS) and government consumption (LNGC) for ODA. There were two models showing bi-directional causality between foreign direct investment and economic growth, and three models showing bi-directional causality between official development assistance and economic growth. The weak exogeneity test is reported in Table 7.7.

Table 7.7: Weak exogeneity test results

								Causality between Y and CF		
LNYPCK = Y					**Exogeneity**			Null Hypothesis		
CF	**CV**	**Obs**	**K**	**A**	**Y**	**CF**	**CV**	Y↔CF	Y→CF	Y←CF
	Debt liability stock									
LNDLS	LNEXP	36	5	4	6.31[0.01]	1.59[0.21]	4.34[0.04]	No	No	Yes
	LNIMP	36	2	4	2.62[0.11]	5.10[0.02]	8.55[0.00]	No	Yes	No
	LNPC	36	3	4	3.34[0.07]	0.20[0.66]	11.33[0.00]	No	No	Yes
	LNXM	36	3	4	7.94[0.00]	0.01[0.91]	3.36[0.07]	No	No	Yes
	Foreign direct investment stock									
LNFDIS	LNDI	36	5	4	10.85[0.00]	2.80[0.09]	5.51[0.02]	Yes	Yes	Yes
	LNEXP	36	3	4	3.83[0.05]	0.07[0.80]	2.97[0.08]	No	No	Yes

	LNGC	36	4	4	7.12[0.01]	0.18[0.67]	5.69[0.02]	No	No	Yes
	LNIMP	36	4	4	10.9[0.00]	5.95[0.01]	6.27[0.01]	Yes	Yes	Yes
	LNINF	36	2	4	6.85[0.01]	0.44[0.51]	8.27[0.00]	No	No	Yes
	LNPC	36	3	4	2.96[0.09]	0.66[0.42]	11.5[0.00]	No	No	Yes
	Official development assistance									
ODA	LNDI	38	3	4	19.09[0.00]	5.32[0.02]	2.68[0.10]	Yes	Yes	Yes
	LNEXP	38	3	4	9.83[0.00]	0.36[0.55]	6.17[0.01]	No	No	Yes
	LNGC	38	4	4	0.17[0.68]	7.56[0.01]	1.40[0.24]	No	Yes	No
	LNIMP	38	4	4	18.90[0.00]	1.73[0.19]	8.42[0.00]	No	No	Yes
	LNINF	38	3	4	7.92[0.00]	6.83[0.01]	12.50[0.00]	Yes	Yes	Yes
	LNPC	38	4	4	21.85[0.00]	4.72[0.03]	0.23[0.63]	Yes	Yes	Yes
	LNXM	38	3	4	10.76[0.00]	0.54[0.46]	5.86[0.02]	No	No	Yes

Source: Compiled and computed by author

In the models reported, the causality between economic growth and the corresponding capital flow was established. For debt liabilities, the results suggest that there is no bi-directional causality but unidirectional causality which runs from economic growth to debt liabilities in only one of the four models reported, and from debt liabilities to economic growth in the remaining three models. This indicates that the results for debt liabilities are mixed where a change in GDP per capita can either cause an increase in debt liability stock or a change in debt liability stock can cause a change in GDP per capita in Mauritius. For foreign direct investment and official development assistance, in some cases bi-directional causality was observed where the corresponding capital flow leads to economic growth and vice versa. This was the case in two of the six models reported for foreign direct investment and three of the seven models reported for ODA. Unidirectional causality was also noted mainly from capital flows to economic growth for the remaining models in the corresponding capital flows. No case of unidirectional causality running from economic growth to foreign direct investment was observed and only one case was observed for official development assistance, which shows that foreign direct investment and official development assistance mainly lead to a change in economic growth in Mauritius.

Thus far, evidence of a long-run relationship between economic growth and capital flows is observed in Mauritius. The magnitude and sign of the causal effect was therefore further explored. The slope coefficients of the estimated models and the error correction terms were ascertained. Residual diagnostic tests were conducted, and the LM-statistics from the serial correlation test and their probability values are reported. Where the probability was above the 10% significance level (which signifies that we cannot reject the null hypothesis of no serial correlation at the lag order), it was taken that the model had passed the serial correlation test.

The heteroskedasticity test was then performed. Here, the chi-square and probability values were reported and the model had to pass this test with a probability level better than 10% for it to be qualified as a good model. The adjusted R^2 values were over 20% in all the models reported. The results reported in Table 7.8 are the models that passed all these tests.

In Mauritius, of the three models reported for debt liabilities in the first panel of Table 7.8, two of them indicated negative relationship while only one indicated a positive relationship. It was observed from the results that the only statistically significant model (exports) was one of the models indicating a negative relationship. This implies that an increase in debt liabilities has a negative effect on economic growth in Mauritius. The coefficient of the error correction term was quite low at 8%. This suggests a slow speed of adjustments to long-run equilibrium changes following a shock. These results point to the fact that the present rise in debt liabilities in Mauritius might be having a negative effect on economic growth and might therefore be partly responsible for the recent slowdown in economic growth. All adjusted R^2 values were above 20%, showing a relatively moderate explanatory power of the model. All models reported passed the residual diagnostic tests (both serial correlation and heteroskedasticity tests). Most of the ECM terms were significant at 1%, except one model (with private credit as control variable) which was significant at 10%.

In the case of foreign direct investment, a negative relationship was also observed in five of the six models reported with only two (with imports and domestic investment as control variable) of the models being significant. The explanatory powers of some of the models were quite low as indicated by the adjusted R^2 values. The speed of adjustment ranged from 7% to 62%, with most skewed towards the upper part of the range – thus showing a relatively high speed of adjustment to the long-run equilibrium. The elasticities also ranged from minus 0.00 to minus 0.10 for the negative models and were 0.01 for the only positive model (exports) reported. While FDI shows a positive relationship to economic growth when exports were included, albeit not significant, the other models indicate a negative relationship between foreign direct investment and economic growth. Only the models with imports and domestic investment as control variables were significant, suggesting foreign direct investment has a negative relationship with economic growth where imports and domestic investments are involved.

Table 7.8: Long-run parameters: Slope coefficients for Mauritius

Y = LNYPCK					Slope Coefficients							
CF	**CV**	**Obs**	**K**	**A**	**Intercept**	**Y**	**CF**	**CV**	**Adjusted R^2**	**ECM term**	**S.Cor**	**Het**
		Debt liability stock										
LNDLS	LNEXP	36	5	4	3.57		-0.72(-3.55)***	1.65(2.63)**	0.42	0.08(3.46)***	3.28[0.95]	161.41[0.37]
	LNPC	36	3	4	2.30		-0.11(-1.23)	2.00(4.01)***	0.27	0.08(1.83)*	5.38[0.80]	85.79[0.43]
	LNXM	36	3	4	4.68		0.03(0.87)	0.55(3.50)***	0.48	-0.38(-4.33)***	5.46[0.79]	89.89[0.31]
		Foreign direct investment stock										
LNFDIS	LNDI	36	5	4	6.99		-0.09(-2.14)**	0.14(2.49)**	0.14	-0.54(-2.93)***	5.53[0.79]	163.52[0.32]
	LNEXP	36	3	4	5.50		0.01(0.10)	0.47(3.08)***	0.51	-0.37(-3.99)***	2.87[0.97]	91.57[0.27]
	LNGC	36	4	4	6.59		-0.10(-1.46)	0.32(1.33)	0.18	-0.48(-3.18)***	10.73[0.29]	136.61[0.14]
	LNIMP	36	4	4	4.99		-0.08(-1.77)*	0.60(6.36)***	0.40	-0.62(-4.46)***	14.71[0.10]	120.62[0.47]
	LNINF	36	2	4	5.65		-0.00(-0.10)	0.74(2.36)**	0.17	-0.12(-3.05)***	11.31[0.26]	41.72[0.73]
	LNPC	36	3	4	-0.13		-0.02(-0.13)	2.75(6.77)***	0.23	0.07(1.81)*	4.74[0.86]	94.28[0.21]
		Official development assistance										
ODA	LNDI	38	3	4	7.05		-0.03(-4.64)***	0.14(4.08)***	0.56	-0.72(-4.78)***	11.42[0.25]	83.69[0.49]
					261.38	-37.09(-6.27)***		5.28(2.43)**	0.24	-0.25(-2.21)**	11.42[0.25]	83.69[0.49]
	LNEXP	38	3	4	5.40		0.00(0.22)	0.50(4.04)***	0.59	-0.34(-4.18)***	1.12[1.00]	92.75[0.24]
	LNGC	38	4	4	29.98	5.32(1.41)		-25.90(-7.33)***	0.50	-0.60(-4.55)***	6.56[0.68]	119.53[0.50]
	LNIMP	38	4	4	5.67		-0.02(-4.51)***	0.44(9.73)***	0.65	-0.96(-5.93)***	6.16[0.72]	109.20[0.75]
	LNPC	38	4	4	-122.02		0.63(1.93)*	45.87(7.46)***	0.63	0.01(5.30)***	12.91[0.17]	110.68[0.72]
					192.19	1.58(0.15)		-72.25(-6.61)***	0.23	0.09(2.03)**	12.91[0.17]	110.68[0.72]
	LNXM	38	3	4	5.16		-0.01(-1.20)	0.48(4.99)***	0.59	-0.47(-4.63)***	4.31[0.89]	98.87[0.13]

Notes: The variables are as defined in Table A1.1 of the appendix. *, **, and *** denotes significance at 10%, 5% and 1% respectively. The values in parenthesis [ ] represents probabilities while the values in ( ) represents t-values.

Source: Computed and compiled by author

These findings are contrary to previous findings on foreign direct investment in Mauritius where Blin and Ouattara (2009), and Sooreea-Bheemul and Sooreea (2012) observed a positive relationship between FDI and economic growth. This might be as a result of both analyses ending in the year 2000 (thus prior to the onset of the global financial crisis). According to Sooreea-Bheemul and Sooreea (2012), exports were the main driving force of growth, with the EPZ and tourism contributing a greater percentage of foreign direct investment into Mauritius in the early 1990s. By 2000, however, banking and the telecommunications sectors accounted for most of the FDI into Mauritius, thus indicating that there was a shift in FDI inflow from the EPZ to the services sector. Although the EPZ and tourism sectors picked up gradually after 2000, the financial services sector still remains the sector receiving the greater percentage of FDI. The shift in sectoral composition of FDI might have accounted for the difference in results as this study ends in 2013, thus incorporating the period of FDI sectoral changes.

The study of Aykut and Sayek (2007), using cross-sectional analysis between 1990 and 2003, discovered that the sectoral composition of FDI plays a vital role in contributing to economic growth. They discovered that as the share of the manufacturing sector in FDI flows increases, a positive effect on economic growth was observed, whereas a negative effect was observed with increases in the share of the primary and services sectors. This might be the case for Mauritius with a shift of FDI from the EPZ sector to the services sector (notably banking and financial services). In recent years, banking and tourism have accounted for a greater percentage of FDI flows into Mauritius than EPZ.

With the introduction of the dummy variable for the period following the global financial crisis, the only model that passed all the tests indicated a negative relationship between foreign direct investment and economic growth, although not significant. The control variable (imports), however, was significant. The dummy variable, DUMGFC was also significant but only at the 10% level of significance (Table A7.5 in appendix). This could mean that while foreign direct investment has had a positive effect on the Mauritian economy in times past, presently it is observed that foreign direct investment contributes negatively to economic growth, probably due to the effect of increased debt liabilities and a deficit in the country's current account balance as a result of its negative trade balance. Since the major trading partners of Mauritius are Europe and South Africa, and given the present crisis in the Eurozone with dwindling economic growth, the global financial crisis might have contributed to the negative effect of foreign direct investment on economic growth in Mauritius. This

might partly account for the observed low economic growth observed in Mauritius in the last four years.

For official development assistance, mixed results were observed. Five models were normalised on official development assistance while three models were normalised on economic growth. The adjusted R^2 values indicated high explanatory power of the models between 56% and 65% for all the five models normalised on official development assistance. Three of the models showed a negative relationship, while two indicated a positive relationship between official development assistance and economic growth. Two of the models that indicated a negative relationship were significant at 1%, while only one of the positive models was significant at 10%. This suggests a negative impact of official development assistance on economic growth, with elasticity mostly close to 0.00 except for private credit at 0.63. Therefore with every single change in the level of official development assistance, there was no real change in economic growth. The speed of adjustment also ranged from 0.01% to 0.96% (as shown by the coefficient of the ECM term), with it being mostly skewed towards the upper part of the range. For the other three models, only one model indicated a negative relationship and was significant at the 1% level. Their adjusted R^2 values were less than 50%. The speed of adjustment to long-run equilibrium changes ranged from 0.09% to minus 60% and elasticity ranging between 1.58 and 37.09. All the control variables and the error correction term were significant. All the models reported passed the residual diagnostic tests conducted.

After the introduction of the dummy variable, it was observed that for foreign direct investment, only one model (where imports were included) passed all the residual diagnostic tests. Foreign direct investment was seen to have a negative relationship with economic growth, although not significant. The model showed a positive and significant control variable with a positive and significant dummy variable, but only at the 10% level of significance. The ECM term was also significant with a high speed of adjustment of 72%. The adjusted R^2 value was 43%, thus showing a relatively good explanatory power of the model.

In the case of debt liabilities, the dummy variable was surprisingly not significant, although the effect of debt liabilities indicated both positive and negative relationships with economic growth, becoming highly significant at the 1% level of significance. It was only the error

correction term for the positive model that was significant, showing a speed of adjustment to long-run equilibrium changes at minus 0.07% and elasticity of 0.38.

In relation to official development assistance, a mixed result was observed. From the five models normalised on economic growth, four models showed negative relationship with three being significant. Only one model of the three models normalised on official development assistance was significant with a negative relationship. Exports and trade, which were initially not significant, became significant after the dummy variable was introduced and imports, which were significant initially, became insignificant. The dummy variable was significant in four of the models (exports, imports, government consumption and trade) reported. The adjusted R^2 values were relatively high, indicating a good explanatory power of the models.

7.6. SUMMARY, CONCLUSION AND RECOMMENDATIONS

The chapter explored the relative contribution of the three major capital flows in Mauritius to economic growth. The causal relationship between capital flows (foreign direct investment, debt liabilities and foreign aid) and economic growth was observed. Furthermore, the magnitude and sign of the long-run relationship between the identified capital flows were investigated to determine which one contributes most to the economy.

The results obtained provide evidence of unidirectional causality mainly from debt liabilities to economic growth in three of the models, and one from economic growth to debt liabilities. No case of bi-directional causality was observed in all the models reported for debt liabilities. Bi-directional causality was, however, observed for foreign direct investment and official development assistance, with two and three cases observed respectively. Four cases of unidirectional causality was also observed from foreign direct investment to economic growth, indicating that foreign direct investment mainly causes economic growth in Mauritius. On the other hand, official development assistance revealed unidirectional causality mostly running from official development assistance to economic growth in three models, and only one model showing unidirectional causality running from economic growth to official development assistance in Mauritius. This suggests that the capital flows mainly cause economic growth in Mauritius.

The overall results indicate a mostly negative relationship between all the foreign capital flows and economic growth in Mauritius. It was only one model each from debt liabilities and foreign direct investment in the estimation that showed a positive relationship with economic

growth, although they were both statistically insignificant. Four models were positive for official development assistance; however, they were also statistically insignificant. It was observed that only the models with a negative relationship showed some form of significance.

With the introduction of the dummy variable for the global financial crisis in Mauritius, it was observed that the dummy variable was significant in four of the models for official development assistance and in only one model for foreign direct investment. The dummy variable was not significant for debt liabilities, although debt liabilities increased considerably in Mauritius after the global financial crisis. However, debt liability, which was originally insignificant, became significant and its relationship to economic growth became positive. Mauritius is therefore advised to assess the contribution of these foreign capital flows to its economic growth, especially foreign direct investment into the different sectors since the global financial crisis and the dealings in recent times regarding its major trading partners, Europe and South Africa.

CHAPTER EIGHT

GENERAL SUMMARY, CONCLUSION AND RECOMMENDATIONS

8.1. INTRODUCTION

The global trend of shrinking economic growth after the global financial crisis, especially for most countries in sub-Saharan Africa has been partly linked to the effects of foreign capital flows (Macias & Massa, 2010). Consequently, the general notion that foreign capital flows lead to an increase in economic growth has been put to the test following developments since the recent global financial crisis. While most previous studies generalise conclusions for sub-Saharan Africa, it is noteworthy that each country has its unique characteristics in terms of financial development, political regimes, economic conditions and institutional development. The reality that this generalisation might not apply to individual countries makes it necessary to determine which capital flow is best for each specific country in sub-Saharan Africa after taking into consideration their unique characteristics.

This study therefore sought to explore the relative contribution of various foreign capital flows to the economic growth of selected sub-Saharan African economies. The three major economies in the cardinal regions of sub-Saharan Africa were selected as regional case studies. South Africa was studied in Southern Africa, Nigeria for West Africa and Kenya for East Africa. Mauritius, a small island country, was included in the study as a special case given its noteworthy accomplishments since gaining independence from Britain in 1968. The foreign capital that contributed the most to the economic growth of each of the four selected economies in sub-Saharan Africa was identified.

8.2. SUMMARY

This section summarises the empirical chapters on the relationship between foreign capital flows and economic growth in the four countries studied in sub-Saharan Africa. The results of the findings are summarised for each country below.

In South Africa, it was observed that economic growth has been on the decrease in recent years, slowing to as low as 1.52% in 2014 which is to a great extent below the potential of the South African economy. The government is therefore seeking ways to bring the economic growth to 5% by 2019 and combat the triple challenge of unemployment, poverty and inequality presently plaguing the country. Consequently, four capital flows were studied in South Africa to determine which contributes most to the economic growth in order to adopt

policies that favour the inflow of these capital flows. Official development assistance was left out of the analysis in South Africa as it only started entering the country after the fall of apartheid in 1994 and the available data did not allow for a sufficient period for time series analysis. A dummy variable was used to capture the effect of apartheid on the different capital flows and economic growth in South Africa. The results reveal that remittances and FDI contributed the most to economic growth out of the four foreign capital flows explored, while debt flows and portfolio equity were positively correlated to economic growth in the country (refer to appendix table A8.1).

For Nigeria, a decrease in debt flows was observed following the change to a democratic regime of 1999 due to policies geared towards the reduction of debt overhang. The creation of the debt management office to reduce debt overhang in the country resulted in the debt forgiveness of US$18.5 billion by the Paris Club of Creditors, which led to the exit from the Paris club debts in 2006 and the payment of outstanding debts owed to the London Club of Creditors in the last quarter of 2007. Economic growth was observed to improve after the transition to a democratic regime and therefore debt liabilities were seen to have a negative effect on economic growth.

It was only remittances of the four foreign capital flows studied that contributed positively to economic growth during the period of the study. For the Nigerian case, portfolio equity was not included in the analysis due to insufficient data points for a time series analysis as portfolio equity is a relatively new form of foreign capital flow in Nigeria and there were thus no adequate data. Furthermore, dummy variables were introduced in the estimation to capture the different political regime periods and financial liberalisation periods in Nigeria. Nigeria was under military rule for most of the time after it gained independence in 1960 until the transition to democracy in 1999, which allowed for civilian rule. The dummy variable was therefore used to capture the effect of the different political regime periods on foreign capital flows and economic growth in the country. Furthermore, another dummy variable was used to capture the effect of financial liberalisation in Nigeria which started as part of the structural adjustment period (SAP) in 1986. The effect was observed to be negative and marginally significant. Remittances were found to have a positive and very significant effect (at 1% significance level) on the economic growth of Nigeria. Foreign direct investment and debt liabilities were also found to have a significant influence on economic growth, although they exhibit negative relationships.

In Kenya, based on the vision 2030 to be a globally competitive industrialising nation through increases in foreign capital flows and to create a higher standard of living for the citizens, five foreign capital flows were studied to determine which one benefits the economy most. Out of these capital flows, it was observed that portfolio equity, foreign aid and FDI were more beneficial. Remittances, however, had a negative effect on economic growth in Kenya and was found to be statistically significant for all models reported. Dummy variables were also introduced in the estimation to capture financial liberalisation periods and the effect of violence before and after presidential election periods on foreign capital flows and economic growth in Kenya. The dummy variable for election periods in Kenya was observed to have a positive and significant relationship, with portfolio equity and foreign aid indicating that the violence during election periods affects the level of portfolio equity and official development assistance into the country.

For Mauritius, a decrease in economic growth was noticed in recent years and a significant increase in debt liabilities was noticed after the global financial crisis. Unidirectional causality running from foreign capital flows to economic growth was observed, mainly with few cases of bi-directional causality for foreign direct investment and official development assistance. For the pursuit of the present agenda of the government to turn Mauritius into a high-income country by 2025 to be realisable, the economy must grow consistently and sustainably (World Bank report, 2013). The contributions of three capital flows to economic growth were therefore assessed in this study. A dummy variable was introduced into the estimation to capture the possible effects of the global financial crisis on foreign capital flows and economic growth. It was found that debt liabilities, foreign direct investment and official development assistance all contributed to economic growth. It was further observed that most of the findings suggest a negative relationship between these foreign capital flows and economic growth. The significant variables in Mauritius were exports, imports and openness to trade indicating that trade, exports and imports are important factors in ensuring economic growth in Mauritius.

Based on the context of each country studied, it was observed that the determinants of capital flows in each of these countries vary. The political environment in each country has an implication for capital flows and affects the types of capital flows attracted to it. Security issues were also seen as one of the determining factors of capital flows as recently countries such as Nigeria and Kenya with the Boko-Haram and the Al-Shabab groups in these countries

respectively potentially having been responsible for the decline in certain types of capital flows witnessed in the last few years.

8.3. CONCLUSION AND POLICY IMPLICATIONS

As can be seen from the results of the empirical chapters, FDI was seen to be a consistent capital flow having a positive relationship with growth in three of the four countries studied, with the exception of Nigeria where a negative relationship was observed. The stock of FDI was statistically significant in all the countries studied except for Mauritius where the positive result (model with exports as control variable) was not significant whereas models with domestic investment and imports as control variables with negative relationship was significant. The indication is that FDI plays an important part in the economic growth of some selected SSA countries. These findings corroborates the findings of Seetanah and Khadaroo (2006) on 39 SSA countries including South Africa, Nigeria, Kenya and Mauritius over the period 1980 to 2000 using GMM estimators. Their findings show that FDI is an important element in explaining economic performance in SSA although to a lesser extent than other types of capital flows. They also concluded that FDI not only precedes growth but also follows growth in SSA.

The majority of FDI in Nigeria goes into the oil sector which does not impact positively on growth. If FDI is important in determining growth, then the foreign direct investment into Nigeria should be diversified from the oil sector into other sectors that contribute positively to growth in order to enhance the benefit of FDI into the economy. FDI into South Africa has been mainly into the mining sector and services, and not concentration in one sector which might be the reason for the positive contribution to economic growth. Similarly, in Kenya FDI was only statistically significant where government consumption was used as control variable in the model. Although it was observed that FDI in three of the countries indicate positive relationship, the contributing factors that stimulate the positive relationship between economic growth and FDI might actually be different.

Remittances also were seen to be a major type of foreign capital flow contributing to the economic growth of some SSA countries such as Nigeria. In the case of Nigeria, it was observed that as the economy is growing, remittances increase while for Kenya, the opposite was observed. As the economy improves in Kenya, Kenyan citizens in diaspora see no reason to remit and therefore remit less, thus indicating that remittances in Kenya are mainly for altruistic purposes. However, in the case of Nigeria, Nigerians remit more as the Nigerian

diaspora now sees the economy as a fertile ground to invest in, which implies that remittances in Nigeria are mainly for investment reasons. The result obtained for South Africa was, however, mixed, although mostly a positive relationship was observed.

Portfolio equity was estimated only for two countries (South Africa and Kenya) where data were available and a positive, and a statistically significant relationship with economic growth was observed in both countries. This implies that portfolio equity contributes to the economic growth of these sub-Saharan African countries. Portfolio equity might also have contributed to the economic growth of both South Africa and Kenya due to the level of financial development in the countries. Smaller sub-Saharan African countries with less developed financial systems might not benefit as much from portfolio equity.

Debt liability, however, showed negative relationship with economic growth for most of the countries studied. For Nigeria, it was observed that as the debt liability stock reduced in the country, the economic growth improved for the better while for Mauritius, as the debt liability stock increased, the economic growth started diminishing with both results being statistically significant. In South Africa, the result for debt liabilities was mixed but not significant. For Kenya, it was found that debt liabilities did not lead to economic growth, rather economic growth leads to debt liabilities which revealed a positive relationship and was statistically significant. It is accordingly recommended that the government in sub-Saharan African countries should strive to reduce their debt liabilities in order to improve economic growth. The implication for increased debt is increase in debt servicing and debt management which will invariably reduce income of the country. Policies to reduce debt liabilities such as the efficient management of debts through seeking debt forgiveness and applying for debt reduction should therefore be implemented to achieve sustainable growth in the economies of these countries.

In the case of foreign aid, this was seen to have a positive and significant effect on economic growth in Kenya. Mauritius, however, exhibits mixed results with a situation of negative relationship and statistically significant when domestic investment and imports were used as control variables while when exports and private credit were used as control variable the results showed positive relationship but statistically insignificant. In Nigeria, it was observed that economic growth has a negative effect on foreign aid into the country. This implies that as the economy is growing and improving, the level of foreign aid into the country reduces. It was only Kenya that showed a case of positive aid-growth relationship which might be as a

result of the presence of the headquarters of aid organisations such as the United Nations and donors based in the country. The presence of such aid organisation in the country may have enhanced the monitoring of aid flows compare to other African countries. This does not imply that aid would contribute positively to growth in other sub-Saharan African countries.

It can be concluded based on the findings of this thesis that the political situation of the countries in sub-Saharan Africa could undoubtedly hinder the inflow of foreign capital, as is the case of Nigeria where the dummy variable for political regime was significant only for debt liability stock when government consumption was used as control variable. Where the country is unstable due to political issues, investors hesitate to venture into the economy and those already operating in these African countries might reduce their investments to avoid massive loss especially in cases where disruption of normal activities and loss of lives and properties have been recorded.

The security issues in these countries might also constitute a major impediment to the inflow of foreign capital, although as can be seen from the chapter on Kenya, the violence experienced during election periods did not significantly affect the growth effects of most capital flows except for portfolio equity stock where one of the models reported indicated a positive and significant influence of the election period dummy variable at 1% level of significance. Economic growth showed a negative relationship with portfolio equity in the model indicating that the violence during election periods had a negative effect on portfolio flows into the country.

This thesis therefore concludes that the heterogeneity of country-related factors is important in the effect of foreign capital flows on economic growth. The context in each country is different and therefore responsible for the type of capital flow that contributes positively to economic growth. For instance, remittances contribute positively to economic growth in Nigeria through investment (Ojapinwa & Odekunle, 2013; Fayomi, Azuh & Ajayi, 2015) thereby having positive effect on economic growth. Foreign direct investment was observed to contribute positively to economic growth in South Africa whereas the extractive nature of FDI in Nigeria does not yield positive contributions to economic growth. This study therefore emphasises the fact that panel data analysis and cross-sectional analysis obscure the specific country-related issues and hence might not be able to predict adequately the type of foreign capital that improves the economic growth of particular countries. This study takes into consideration the uniqueness and specific characteristics of each of the countries, implying

that policies should be tailored to suit the specific needs of countries in sub-Saharan Africa in order to boost sustainable economic growth. It can be concluded that country-specific studies are important for policy implementation of capital flows in each country.

8.4. RECOMMENDATIONS

Policies should be put in place such as reduction of fees for the transfer of remittances which would favour the inflow of remittances to achieve a greater inflow of this type of foreign capital into sub-Saharan African countries. Remittances should be put into viable use like investments to ensure that they translate into economic growth for African countries. With the remittances invested rather than consumed, employment opportunities would be created and income generated; thereby leading to further increases in the level of output of the country, hence economic growth. Banks and financial institutions should be encouraged to lend to start-up businesses to support them. The issue of diaspora bonds should also be considered carefully and used for sustainable growth.

Encouragement of FDI into other sectors of the economy in order to enable increase in economic growth as against only into one sector of the economy such as the oil sector where it might not contribute to the economic growth of the country as seen in the case of Nigeria. The diversification of FDI into different sectors has been shown from previous studies (Imoudu, 2012 and Adigun, 2015) to contribute more positively to economic growth. Therefore FDI should be targeted into sectors which have been identified to bring about growth in the economy as against the extractive nature of FDI in Nigeria where it has very little or no positive spill over effect to the rest of the economy. The encouragement of more foreign direct investment into the country rather than portfolio equity which is highly volatile and easily reversible in times of crisis especially in a country such as South Africa should be the focus. According to a recent study on net portfolio equity investment (NPEI) by Ndong (2015) on eleven African countries including Kenya, Nigeria and South Africa concludes that NPEI flows have a positive but statistically insignificant effect on equity returns and economic growth. Ndong (2015) therefore suggests the promotion of stock market development in African countries.

Debt policies that have worked in the past should be adopted, such as the debt reduction for Nigeria during the Okonjo-Iweala reform as the finance minister which saw a massive reduction in the debt liability of Nigeria. This was achieved by the set-up of a debt management office (DMO) to manage the country's debts. Since it has been found that debt

has a negative impact on growth both in Nigeria and South Africa, measures such as seeking for debt forgiveness and applying for debt reduction should be encouraged to reduce debt flows in sub-Saharan African countries. The present increase in debt flows in Mauritius could be a contributing factor to the observed reduction in economic growth.

Comprehensive economic reform programme initiated to fast-track economic growth in the 2000s such as the medium term expenditure framework (MTEF) implemented between 2003 and 2005 in Nigeria could be replicated in other SSA countries. This macroeconomic framework was initiated to strengthen fiscal management and improve the planning and budgeting of public expenditure to curtail abuse and misallocation of resources.

Mauritius has become a model country in sub-Saharan Africa to other developing economies with its success story of a low-income economy in the 1970s to one of the countries with the highest GDP per capita in sub-Saharan Africa. This good economic performance can be attributed to political stability, a strong institutional framework, open trade policies, a favourable regulatory environment and a low level of corruption existing in the country. These are vital lessons to be learnt from Mauritius by other developing African countries.

Political instability, which is a drawback in many of the sub-Saharan African countries, has contributed to their low growths and one of the reasons why capital flows have not been efficient in some sub-Saharan African countries. The political situation of the countries in sub-Saharan Africa is a major concern for investors; therefore it is recommended that leaders should guarantee stability by addressing the concerns of citizens and avoiding violence so as to make the country attractive to foreign investors.

8.5. NOTES FOR FURTHER RESEARCH

This thesis looked at the macroeconomic aspect of economic growth in each of the four major countries studied. As much as it is acknowledged that the study determined the relative contribution of foreign capital flows on the economic growth of the country based on the unique characteristics of each country and contextual situations of each country; the study did not, however, examine if this growth trickles down to the masses in terms of poverty reduction, reduction in unemployment, bridging inequality levels and resulting in better standards of living for citizens in these countries. This has not been considered in this study as it is not included in the scope and purpose of the current study. Nevertheless, the welfare implications of foreign capital flows and the resultant economic growth is an important policy concern. This is a potential topic for further study.

In addition, as relates to remittances which were seen to contribute positively to economic growth in two of the countries studied, one might like to assess the implication if immigrants have stayed back in their home countries and contributed one hundred percent in the economy. It would be good to know if they would have contributed more to economic growth by staying in their home countries rather than the contribution to economic growth through remittance sent which is a mere portion of their earnings in a foreign country. The relationship between remittances and brain drain is an interesting issue that would have to be considered since most of these citizens in diaspora contribute to the economic growth of their host countries. Further study is needed to address this pertinent question.

REFERENCES

Abala, D.O. 2014. Foreign Direct Investment and Economic Growth: An Empirical Analysis of Kenyan Data. *DBA Africa Management Review,* 4(1), 62-83.

Acosta, P., Calderón, C., Fajnzylber, P. & Lopez, H. 2008. What is the Impact of International Remittances on Poverty and Inequality in Latin America? *World Development,* 36(1), 89-114.

Adams Jr, R.H. & Page, J. 2005. Do International Migration and Remittances Reduce Poverty in Developing Countries? *World Development,* 33(10), 1645-1669.

Adams, S. 2009. Foreign Direct Investment, Domestic Investment, and Economic Growth in Sub-Saharan Africa. *Journal of Policy Modeling,* 31(6), 939-949.

Adegbite, E.O., Ayadi, F.S. & Ayadi, O.F. 2008. The Impact of Nigeria's External Debt on Economic Development. *International Journal of Emerging Markets,* 3(3), 285-301.

Adegboye, A.C., Ogbebor, A.O. & Egharvba, M. I. (2014): "External Capital Flows and Economic Growth in Nigeria". *JORIND,* 12(2), 91-98.

Adelegan, J.O. 2000. Foreign Direct Investment and Economic Growth in Nigeria: A Seemingly Unrelated Model. *African Review of Money Finance and Banking,* :5-25.

Adenutsi, D.E., Aziakpono, M.J. & Ocran, M.K. (2011). The Impact of International Remittances on Economic Growth in Sub-Saharan Africa.

Adigun, A.O. 2015. Sectoral Inflow of Foreign Direct Investment and Economic Growth in Nigeria. *Journal of Economics and Sustainable Development,* 6(17), 166-172.

Adjasi, C., Abor, J., Osei, K.A. & Nyavor-Foli, E.E. 2012. FDI and Economic Activity in Africa: The Role of Local Financial Markets. *Thunderbird International Business Review,* 54(4), 429-439.

Agbloyor, E.K., Abor, J.Y., Adjasi, C.K.D. & Yawson, A. 2014. Private Capital Flows and Economic Growth in Africa: The Role of Domestic Financial Markets. *Journal of International Financial Markets, Institutions and Money,* 30, 137-152.

Agbloyor, E.K., Abor, J., Adjasi, C.K.D. & Yawson, A. 2013. Exploring the Causality Links between Financial Markets and Foreign Direct Investment in Africa. *Research in International Business and Finance,* 28, 118-134.

Agénor, P. 2003. Benefits and Costs of International Financial Integration: Theory and Facts. *The World Economy,* 26(8), 1089-1118.

Aggarwal, R., Demirgüç-Kunt, A. & Pería, M.S.M. 2011. Do Remittances Promote Financial Development? *Journal of Development Economics,* 96(2), 255-264.

Aitken, B.J. & Harrison, A.E. 1999. Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review,* 89(3), 605-618.

Aizenman, J., Jinjarak, Y. & Park, D. 2013. Capital Flows and Economic Growth in the Era of Financial Integration and Crisis, 1990–2010. *Open Economies Review,* 24(3), 371-396.

Ajayi, L.B. & Oke, M.O. 2012. Effect of External Debt on Economic Growth and Development of Nigeria. *International Journal of Business and Social Science,* 3(12), 297-304.

Ajide, K.B. 2014: "Determinants of Economic Growth in Nigeria". CBN Journal of Applied Statistics, 5(2), 147-170.

Ajilore, T. & Ikhide, S. 2013. Growth effects of migrants' remittances in sub-Saharan African Countries. *Journal of Economic and Financial Sciences,* 6(3), 707-730.

Akinlo, A.E. 2004. Foreign Direct Investment and Growth in Nigeria: An Empirical Investigation. *Journal of Policy Modeling,* 26(5), 627-639.

Akram, N. 2013. Empirical Examination of Debt and Growth Nexus in South Asian Countries. *Economic development in South and East Asia: empirical examination of East Asian Development Model,* 20(2), 29-52.

Alfaro, L. 2003. Foreign Direct Investment and Growth: Does the Sector Matter. *Harvard Business School,* 1-31.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S. & Sayek, S. 2006. *How does foreign direct investment promote economic growth? Exploring the effects of financial markets on linkages,*

Alfaro, L., Chanda, A., Kalemli-Ozcan, S. & Sayek, S. 2004. FDI and Economic Growth: The Role of Local Financial Markets. *Journal of International Economics,* 64(1), 89-112.

Alfaro, L. & Charlton, A. 2007. *Growth and the quality of foreign direct investment: Is all FDI equal?* Centre for Economic Performance, London School of Economics and Political Science

ALMB. 2014. *Labour market policy, labour market information and statistics.* Annual Labour Market Bulletin (ALMB), Department of Labour, Republic of South Africa, Pretoria. April 2013 – March 2014.

Amuedo-Dorantes, C. & Pozo, S. 2004. Workers' Remittances and the Real Exchange Rate: A Paradox of Gifts. *World Development,* 32(8), 1407-1417.

Arellano, C., Bulíř, A., Lane, T. & Lipschitz, L. 2009. The dynamic implications of foreign aid and its variability. *Journal of Development Economics,* 88, 87-102.

Arestis, P. & Demetriades, P. 1997. Financial Development and Economic Growth: Assessing the Evidence*. *The Economic Journal,* 107(442), 783-799.

Asiedu, E. 2002. On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different? *World Development,* 30(1), 107-119.

Asiedu, E., Jin, Y. & Nandwa, B. 2009. Does Foreign Aid Mitigate the Adverse Effect of Expropriation Risk on Foreign Direct Investment? *Journal of International Economics,* 78(2), 268-275.

Asteriou, D. 2009. Foreign Aid and Economic Growth: New Evidence from a Panel Data Approach for Five South Asian Countries. *Journal of Policy Modeling,* 31(1), 155-161.

Ayadi, F.S. & Ayadi, F.O. 2008. The Impact of External Debt on Economic Growth: A Comparative Study of Nigeria and South Africa. *Journal of Sustainable Development in Africa,* 10(3), 234-264.

Ayanwale, A.A. 2007: "FDI and Economic Growth: Evidence from Nigeria". African Economic Research Consortium (AERC Research Paper 165). April 2007.

Aykut, D. & Sayek, S. 2007. The Role of Sectoral Composition of Foreign Direct Investment on Growth. *Do multinationals feed local development and growth? International Business and Management,* 22, 35-62.

Aziakpono, M. 2008. *The depth of financial integration and its effects on financial development and economic performance of the SACU countries*. Ph.D. thesis, University of the Free State, South Africa.

Aziakpono, M. 2013. Financial Integration and Economic Growth: Theory and a Survey of Evidence. *Studies in Economics and Econometrics*, 37(3), 61-86.

Baharumshah, A.Z. & Thanoon, M.A. 2006. Foreign Capital Flows and Economic Growth in East Asian Countries. *China Economic Review*, 17(1), 70-83.

Bailliu, J.N. 2000. *Private capital flows, financial development, and economic growth in developing countries.* Bank of Canada Working Paper 2000-15. Bank of Canada

Balasubramanyam, V.N., Salisu, M. & Sapsford, D. 1996. Foreign Direct Investment and Growth in EP and IS Countries. *The Economic Journal*, 106(434), 92-105.

Balasubramanyam, V.N., Salisu, M. & Sapsford, D. 1999. Foreign Direct Investment as an Engine of Growth. *Journal of International Trade & Economic Development*, 8(1), 27-40.

Bamgboye, P.O. 2014. "The Military and Socio-Economic Development in Nigeria (1983 – 1999): A critical appraisal". *Mediterranean Journal of Social Sciences*, 5(23), 2340-2344.

Barajas, A., Chami, R., Fullenkamp, C., Gapen, M. & Montiel, P. 2009. *Do workers' remittances promote economic growth?* International Monetary Fund Washington, DC

Barrell, R. & Pain, N. 1997. Foreign Direct Investment, Technological Change, and Economic Growth within Europe*. *The Economic Journal*, 107(445), 1770-1786.

Barro, R.J. & Lee, J. 1994. Sources of Economic Growth. *Carnegie-Rochester Conference Series on Public Policy*, 40(0), 1-46.

Baum, A., Checherita-Westphal, C. & Rother, P. 2013. Debt and Growth: New Evidence for the Euro Area. *Journal of International Money and Finance*, 32, 809-821.

Beghum, Sannassee, Seetanah & Lamport. 2011. On the determinants of Foreign Capital flows: Evidence from an African Economy. ICITI 2011. ISSN: 16941225.

Beine, M., Docquier, F. & Rapoport, H. 2001. Brain Drain and Economic Growth: Theory and Evidence. *Journal of Development Economics*, 64(1), 275-289.

Belloumi, M. 2009. Energy consumption and GDP in Tunisia: Co-integration and causality analysis. *Energy Policy*, 37(7), 2745-2753.

Bengoa, M. & Sanchez-Robles, B. 2003. Foreign Direct Investment, Economic Freedom and Growth: New Evidence from Latin America. *European Journal of Political Economy*, 19(3), 529-545.

Blin, M. & Ouattara, B. 2009. Foreign Direct Investment and Economic Growth in Mauritius: Evidence from Bounds Test Cointegration. *Economie Internationale*, 117(1), 47-61.

Blomstrom, M., Lipsey, R.E. & Zejan, M. 1996. *Is Fixed Investment the Key to Economic Growth?*,

Bordo, M.D., Meissner, C.M. & Stuckler, D. 2010. Foreign Currency Debt, Financial Crises and Economic Growth: A Long-Run View. *Journal of International Money and Finance,* 29(4), 642-665.

Borensztein, E., De Gregorio, J. & Lee, J. 1998. How does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics,* 45(1), 115-135.

Bosworth, B.P., Collins, S.M. & Reinhart, C.M. 1999. Capital Flows to Developing Economies: Implications for Saving and Investment. *Brookings Papers on Economic Activity,* 1999(1), 143-180.

Brooks, C. 2008. Introductory Econometrics for Finance. Second edition. Cambridge University Press. New York. ISBN-13 978-0-521-69468-1.

Buch, C.M. & Kuckulenz, A. 2004. Worker Remittances and Capital Flows to Developing Countries. *ZEW-Centre for European Economic Research Discussion paper,* (04-031).

Bulíř, A. & Hamann, A.J. 2008. Volatility of Development Aid: From the Frying Pan into the Fire? *World Development,* 36(10), 2048-2066.

Burnside, C. & Dollar, D. 2000. Aid, Policies, and Growth. *American Economic Review,* 90(4). :847-868.

Carkovic, M. & Levine, R. 2002. Does Foreign Direct Investment Accelerate Economic Growth? *University of Minnesota Department of Finance Working Paper.*

Catrineseu, N., Leon-Ledesma, M., Piracha, M. & Quillin, B. 2009. Remittances, Institutions, and Economic Growth. *World Development,* 37(1), 81-92.

CBN. 2001: "Annual Report and Statement of Accounts for the year ended 31 December, 2001". Abuja. Central Bank of Nigeria (CBN).

CBN. 2008: "The Changing Structure of the Nigerian Economy". Central Bank of Nigeria (CBN) 2008. Edited by Mordi, C.N.O., Englama, A. & Adebusuyi, B.S.

Chakraborty, C. & Basu, P. 2002. Foreign Direct Investment and Growth in India: A Cointegration Approach. *Applied Economics,* 34(9), 1061-1073.

Chami, R., Fullenkamp, C. & Jahjah, S. 2003. *Are immigrant remittance flows a source of capital for development.* International Monetary Fund. IMF Working paper WP/03/189.

Chami, R., Fullenkamp, C. & Jahjah, S. 2005. *Are Immigrant Remittance Flows a Source of Capital for Development.* International Monetary Fund. *IMF staff papers,* 52(1), 55-81.

Checherita, C. & Rother, P. 2010. The Impact of High and Growing Government Debt on Economic Growth. *An empirical investigation for the Euro Area.Frankfurt: European Central Bank Working Paper Series,* (1237).

Chenery, H.B. & Strout, A.M. 1966. Foreign Assistance and Economic Development. *The American Economic Review,* 56(4), 679-733.

Chinn, M.D. & Ito, H. 2006. What Matters for Financial Development? Capital Controls, Institutions, and Interactions. *Journal of Development Economics*, 81(1), 163-192.

Choe, J.I. 2003. Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth? *Review of Development Economics*, 7(1), 44-57.

Chowdhury, M.B. 2011. Remittances Flow and Financial Development in Bangladesh. *Economic Modelling*, 28(6), 2600-2608.

Dalgaard, C. & Hansen, H. 2001. On Aid, Growth and Good Policies. *Journal of development Studies*, 37(6), 17-41.

Dalgaard, C., Hansen, H. & Tarp, F. 2004. On the Empirics of Foreign Aid and Growth*. *The Economic Journal*, 114(496), F191-F216.

De Mello Jr, Luiz R. 1997. Foreign Direct Investment in Developing Countries and Growth: A Selective Survey. *The Journal of Development Studies*, 34(1), 1-34.

De Mello, L.R. 1999. Foreign Direct Investment-Led Growth: Evidence from Time Series and Panel Data. *Oxford Economic Papers*, 51(1), 133-151.

Demetriades, P.O. & Hussein, K.A. 1996. Does Financial Development Cause Economic Growth? Time-Series Evidence from 16 Countries. *Journal of Development Economics*, 51(2), 387-411.

Demirgüç-Kunt, A. & Levine, R. 1996. Stock Markets, Corporate Finance, and Economic Growth: An Overview. *The World Bank Economic Review*, 10(2, A Symposium Issue on Stock Markets and Economic Development), 223-239.

Djankov, S. & Hoekman, B. 2000. Foreign Investment and Productivity Growth in Czech Enterprises. *The World Bank Economic Review*, 14(1), 49-64.

Driffield, N. & Jones, C. 2013. Impact of FDI, ODA and Migrant Remittances on Economic Growth in Developing Countries: A Systems Approach. *The European Journal of Development Research*, 25(2), 173-196.

Du Plessis, S. & Smit, B. 2006. Economic Growth in South Africa since 1994. *University of*,

Dunning, J.H. 1980. Toward an Eclectic Theory of International Production. *The International Executive*, 22(3), 1-3.

Dunning, J.H. & Lundan, S.M. 2008. *Multinational enterprises and the global economy*. Edward Elgar Publishing

Durbarry, R. 2004. Tourism and Economic Growth: The Case of Mauritius. *Tourism Economics*, 10(4), 389-401.

Durham, J.B. 2004. Absorptive Capacity and the Effects of Foreign Direct Investment and Equity Foreign Portfolio Investment on Economic Growth. *European Economic Review*, 48(2), 285-306.

Dzangare, G. (2011). *The Impact of Private Capital Flows on Economic Growth in South Africa*. Ph.D. thesis, University of Fort Hare, South Africa.

Easterly, W. 2003. Can Foreign Aid Buy Growth? *The Journal of Economic Perspectives,* 17(3), 23-48.

Easterly, W., Levine, R. & Roodman, D. 2003. *New Data, New Doubts: A comment on Burnside and Dollar's "Aid, Policies, and Growth"(2000),*

Edison, H.J., Levine, R., Ricci, L. & Sløk, T. 2002. International Financial Integration and Economic Growth. *Journal of International Money and Finance,* 21(6), 749-776.

Edwards, S. 2001. *Capital Mobility and Economic Performance: Are Emerging Economies Different?,*

Eichengreen, B. & Rose, A.K. 1998. *Staying Afloat when the Wind Shifts: External Factors and Emerging-Market Banking Crises,*

Elbadawi, I. & Rocha, R.R. 1992. *Determinants of expatriate workers' remittances in north africa and europe.* Country Economics Department, World Bank

Ezeabasili, V.N., Isu, H.O. & Mojekwu, J.N. 2011. Nigeria's External Debt and Economic Growth: An Error Correction Approach. *International Journal of Business and Management,* 6(5), 156-170.

Fajnzylber, P. & López, J.H. 2007. *Close to home: The Development Impact of Remittances in Latin America.* International Bank for Reconstruction and Development

Fasanya, I. O. 2012. Capital flows-growth nexus in Nigeria: has foreign direct investment played a role in accelerating economic growth. *Journal of Sustainable Development in Africa,* 14(8), 34-52.

Fasanya, I.O. & Onakoya, A.B. 2012. Does Foreign Aid Accelerate Economic Growth? an Empirical Analysis for Nigeria. *International Journal of Economics and Financial Issues,* 2(4), 423-431.

Fayissa, B. & Nsiah, C. 2010. The Impact of Remittances on Economic Growth and Development in Africa. *American Economist,* 55(2), 92-103.

Fayomi, O., Azuh, D. & Ajayi, L. 2015. The Impacts of Remittances on Nigeria's Economic growth: A study of Nigerian Diasporas in Ghana. *Journal of South African Business Research,* Volume (2015). Article ID 598378. DOI: 10.5171/2015.598378.

Fedderke, J.W. & Romm, A.T. 2006. Growth Impact and Determinants of Foreign Direct Investment into South Africa, 1956–2003. *Economic Modelling,* 23(5), 738-760.

Feeny, S. 2005. The Impact of Foreign Aid on Economic Growth in Papua New Guinea. *Journal of Development Studies,* 41(6), 1092-1117.

Fosu, A.K. 1996. Primary Exports and Economic Growth in Developing Countries. *The World Economy*, 19(4), 465-475.

Frankel, J.A. & Rose, A.K. 1996. Currency Crashes in Emerging Markets: An Empirical Treatment. *Journal of International Economics*, 41(3), 351-366.

Giuliano, P. & Ruiz-Arranz, M. 2009. Remittances, Financial Development, and Growth. *Journal of Development Economics*, 90(1), 144-152.

Görg, H. & Greenaway, D. 2004. Much Ado about Nothing? Do Domestic Firms really Benefit from Foreign Direct Investment? *The World Bank Research Observer*, 19(2), 171-197.

Government of the Republic of Kenya, 2007. A Globally Competitive and Prosperous Kenya. [Online] *http://www.vision2030.go.ke/wp-content/uploads/2015/06/Vision2030_Popular_version_final2.pdf*

Gupta, S., Pattillo, C.A. & Wagh, S. 2009. Effect of Remittances on Poverty and Financial Development in Sub-Saharan Africa. *World Development*, 37(1), 104-115.

Hansen, H. & Rand, J. 2006. On the Causal Links between FDI and Growth in Developing Countries. *The World Economy*, 29(1), 21-41.

Hansen, H. & Tarp, F. 2001. Aid and Growth Regressions. *Journal of Development Economics*, 64(2), 547-570.

Harris, D. 1995. *Using Cointegration Analysis in Econometric Modelling.* London: Prentice Hall, Harvester Wheatsheaf.

Headey, D. 2008. Geopolitics and the Effect of Foreign Aid on Economic Growth: 1970–2001. *Journal of International Development*, 20(2), 161-180.

Hermes, N. & Lensink, R. 2003. Foreign Direct Investment, Financial Development and Economic Growth. *The Journal of Development Studies*, 40(1), 142-163.

IMF, 2003. Estimation of the Equilibrium Real Exchange Rate for South Africa. IMF Country Report No. 03/18. January 2003. South Africa: Selected Issues (I).

IMF, 2012. Growth resuming, dangers remain. World Economic Outlook, April 2012. International Monetary Fund (IMF).

IMF, 2014. International Monetary Fund (IMF) Country report No. 14/107. May 2014.

Imoudu, E.C. 2012. The Impact of Foreign Direct Investment on Nigeria's Economic Growth; 1980-2009: Evidence from the Johansen's Co-Integration Approach. *International Journal of Business and Social Science*, 3(6), 122-134.

Islam, A. 1992. Foreign Aid and Economic Growth: An Econometric Study of Bangladesh. *Journal of the History of Economic Thought*, 24(5), 541-544.

Johansen, S. 1991. Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models. *Econometrica: Journal of the Econometric Society*, 1551-1580.

Johansen, S. 1988. Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*, 12(2), 231-254.

Johansen, S. & Juselius, K. 1990. Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics*, 52(2), 169-210.

Johnson, G.E. & Whitelaw, W.E. 1974. Urban-Rural Income Transfers in Kenya: An Estimated-Remittances Function. *Economic Development and Cultural Change*, 22(3), 473-479.

Kalumiya, N. & Kannan, A. 2015. African Economic Outlook. AfDB, OECD, UNDP. Mauritius 2015. www.africaneconomicoutlook.org.

Kaminsky, G.L., Reinhart, C.M. &Végh, C.A. 2005. When it rains, it pours: Procyclical capital flows and macroeconomic policies, *NBER macroeconomics annual 2004, volume 19.* MIT Press.Pages 11-82 in

Kant, C. 1996. *Foreign Direct Investment and Capital Flight*. Princeton Studies in International Finance. No. 80. ISSN 0081-8070; No. 80. ISBN 0-88165-252-0).

Kasekende, L., Kitabire, D. & Martin, M. 1996. Presented at a Symposium on "Global Capital Flows in Economic Development" Sponsored by the Jerome Levy Economics Institute of Bard College. United Nations Conference on Trade and Development Global Interdependence Division and Intergovernmental Group of Twenty-Four on International Monetary Affairs. March X-9. 1996.

Karras, G. 2006. Foreign Aid and long-run Economic Growth: Empirical Evidence for a Panel of Developing Countries. *Journal of International Development*, 18(1), 15-28.

Kim, D.D. & Seo, J. 2003. Does FDI Inflow Crowd Out Domestic Investment in Korea? *Journal of Economic Studies*, 30(6), 605-622.

King, R.G. & Levine, R. 1993a. Finance and Growth: Schumpeter might be Right. *The Quarterly Journal of Economics*, 108(3), 717-737.

Klein, M.W. & Olivei, G.P. 2008. Capital Account Liberalization, Financial Depth, and Economic Growth. *Journal of International Money and Finance*, 27(6), 861-875.

Kodongo, O. & Ojah, K. 2012. The Dynamic Relation between Foreign Exchange Rates and International Portfolio Flows: Evidence from Africa's Capital Markets. *International Review of Economics & Finance*, 24, 71-87.

Konings, J. 2001. The Effects of Foreign Direct Investment on Domestic Firms. *Economics of transition*, 9(3), 619-633.

Kose, M.A., Prasad, E., Rogoff, K. & Wei, S. 2009. Financial Globalization: A Reappraisal. *IMF Staff Papers*, 56(1), 8-62.

Lane, P.R. & Milesi-Ferretti, G.M. 2007. The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004. *Journal of International Economics*, 73(2), 223-250.

Lartey, E.K. 2013. Remittances, Investment and Growth in Sub-Saharan Africa. *The Journal of International Trade & Economic Development*, 22(7), 1038-1058.

Lensink, R. & Morrissey, O. 2006. Foreign Direct Investment: Flows, Volatility, and the Impact on Growth*. *Review of International Economics*, 14(3), 478-493.

Levine, R. 2001. International Financial Liberalization and Economic Growth. *Review of International Economics*, 9(4), 688-702.

Levine, R. & Zervos, S. 1998. Stock Markets, Banks, and Economic Growth. *American Economic Review*, 88(3), 537-558.

Levy, V. 1988. Aid and Growth in Sub-Saharan Africa: The Recent Experience. *European Economic Review*, 32(9), 1777-1795.

Li, X. & Liu, X. 2005. Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *World Development*, 33(3), 393-407.

Lu, S. & Ram, R. 2001. Foreign Aid, Government Policies, and Economic Growth: Further Evidence from Cross-Country Panel Data for 1970-1993. *Economia Internazionale/ International Economics*, 54(1), 15-29.

Lucas, R.E. 1990. Why Doesn't Capital Flow from Rich to Poor Countries? *The American Economic Review*, 80(2), 92-96.

Lucas, R.E. & Stark, O. 1985. Motivations to Remit: Evidence from Botswana. *The Journal of Political Economy*, 901-918.

Macias, J.B. & Massa, I. 2010. The Global Financial Crisis and sub-Saharan Africa: The Effects of Slowing Private Capital Inflows on Growth. *African Development Review*, 22(3), 366-377.

Makki, S.S. & Somwaru, A. 2004. Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries. *American Journal of Agricultural Economics*, 86(3), 795-801.

M'Amanja, D. & Morrissey, O. 2006. *Foreign aid, investment and economic growth in Kenya: a time series approach*,

Mbaku, J.M. 1993. Foreign Aid and Economic Growth in Cameroon. *Applied Economics*, 25(10), 1309-1314.

McGillivray, M., Feeny, S., Hermes, N. & Lensink, R. 2006. Controversies over the impact of development aid: it works; it doesn't; it can, but that depends. *Journal of International Development,* 18(7), 1031-1050.

Mhlanga, N. & Christy, R.D. 2006. *Capital Flows to Africa: An Analysis of the Structure of Official and Private Capital Flows,*

Milesi-Ferretti, G. & Tille, C. 2011. The Great Retrenchment: International Capital Flows during the Global Financial Crisis. *Economic Policy,* 26(66), 289-346.

Minoiu, C. & Reddy, S.G. 2010. Development Aid and Economic Growth: A Positive Long-Run Relation. *The Quarterly Review of Economics and Finance,* 50(1), 27-39.

Mody, A. & Murshid, A.P. 2005. Growing Up with Capital Flows. *Journal of International Economics,* 65(1), 249-266.

Moreira, S. 2003. Evaluating the Impact of Foreign Aid on Economic Growth: A Cross-Country Study (1970-1998). Paper presented at 15th Annual Meeting on Socio-Economics.

Morrissey, O. (2001). Does aid increase growth? *Progress in Development Studies,* 1(1), 37-50.

Mosley, P., Hudson, J. & Horrell, S. 1987. Aid, the Public Sector and the Market in Less Developed Countries. *The Economic Journal,* 97(387), 616-641.

Mundaca, B.G. 2009. Remittances, Financial Market Development, and Economic Growth: The Case of Latin America and the Caribbean. *Review of Development Economics,* 13(2), 288-303.

Murshid, A.P. & Mody, A. 2011. *Growth from international capital flows: The role of volatility regimes.* International Monetary Fund

Mwangi, B.N. & Mwenda, S.N. 2015. The Effect of International Remittances on Economic Growth in Kenya. *Microeconomics and Macroeconomics,* 3(1), 15-24.

N Berger, A. & F Udell, G. 1998. The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle. *Journal of Banking & Finance,* 22(6), 613-673.

Ndikumana, L. & Boyce, J.K. 2003. Public Debts and Private Assets: Explaining Capital Flight from Sub-Saharan African Countries. *World Development,* 31(1), 107-130.

Ndong, B. 2015. Effect of Portfolio Equity Investment Flows on Equity Returns and Economic Growth in 11 Major African Stock Markets. *International Journal of Economics and Finance,* 7(2), 225.

Nyamongo, E.M., Misati, R.N., Kipyegon, L. & Ndirangu, L. 2012. Remittances, Financial Development and Economic Growth in Africa. *Journal of Economics and Business,* 64(3), 240-260.

Nyamwange, M. 2009. Foreign Direct Investment in Kenya. *MPRA paper 34155.*

Obiechina, M.E. & Ukeje, E.U. 2013. Economic Growth, Capital Flows, Foreign Exchange Rate, Export and Trade Openness in Nigeria. *International Journal of Economics and Management Sciences,* 2(9), 01-13.

Ocharo, K.N., Wawire, W., Kosimbei, G. & Ng'ang'a, T.K. 2014. Private Capital Inflows and Economic Growth in Kenya. *International Journal of Development and Sustainability,* 3(4), 810-837.

Ogujiuba, K. & Obiechina, E. 2012. Foreign Private Capital, Economic growth and Macroeconomic Indicators in Nigeria: An Empirical Framework. *International Journal of Economics and Finance,* 4(10), 111-124.

Ojapinwa, T.V. & Odekunle, L.A. 2013. Workers' Remittance and their effect on the level of Investment in Nigeria: An empirical analysis. *International Journal of Economics and Finance*, 5(4), 89-99.

Okonkwo, R.I., Egbunike, F. & Udeh, F.N. 2015. Foreign Direct Investment and Economic Growth in Nigeria. *Developing Country Studies*, 5(9), 47-52.

Olayiwola, K. & Okodua, H. 2013. Foreign Direct Investment, Non-Oil Exports, and Economic Growth in Nigeria: A Causality Analysis. *Asian Economic and Financial Review,* 3(11), 1479-1496.

Oliva, M. & Rivera-Batiz, L.A. 2002. Political Institutions, Capital Flows, and Developing Country Growth: An Empirical Investigation. *Review of Development Economics,* 6(2), 248-262.

Oney, B. & Halilsoy, H. 2011. Banks, Stock Markets and Economic Growth in High-Income OECD: An Empirical Investigation. *African Journal of Business Management,* 5(3), 1039-1050.

Oni, T.O., Imolehin, O.A., Adelowo, W.B. & Adejumo, A.V. 2014. Foreign Private Investment and Economic Growth in Nigeria. *International Journal of Development and Economic Sustainability,* 2(1), 39-48.

Pagano, M. 1993. Financial Markets and Growth: An Overview. *European Economic Review,* 37(2), 613-622.

Papanek, G.F. 1973. Aid, Foreign Private Investment, Savings, and Growth in Less Developed Countries. *The Journal of Political Economy,* 81(1), 120-130.

Pattillo, C.A., Poirson, H. & Ricci, L.A. 2002. *External debt and growth.* International Monetary Fund, IMF Working Papers 02/69.

Perron, P. 1989. The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis. *Econometrica*, 57(6), 1361-1401.

Portes, R. & Rey, H. 2005. The Determinants of Cross-Border Equity Flows. *Journal of International Economics*, 65(2), 269-296.

Pradhan, G., Upadhyay, M. & Upadhyaya, K. 2008. Remittances and Economic Growth in Developing Countries. *The European Journal of Development Research*, 20(3), 497-506.

Prasad, E.S., Rajan, R.G. & Subramanian, A. 2007. *Foreign Capital and Economic Growth,*

Quinn, D.P. & Toyoda, A.M. 2008. Does Capital Account Liberalization Lead to Growth? *Review of Financial Studies*, 21(3), 1403-1449.

Radelet, S. & Sachs, J.D. 2000. The Onset of the East Asian Financial Crisis, *Currency Crises.* University of Chicago Press. 105-162

Radelet, S. & Sachs, J.D. 1998. Shipping Costs, Manufactured Exports, and Economic Growth.

Rajan, R.G. & Subramanian, A. 2008. Aid and Growth: What does the Cross-Country Evidence really show? *The review of economics and statistics*, 90(4), 643-665.

Ram, R. 2004. Recipient Country's 'policies' and the Effect of Foreign Aid on Economic Growth in Developing Countries: Additional Evidence. *Journal of International Development*, 16(2), 201-211.

Ratha, D., Mohapatra, S. & Silwal, A. 2009. Migration and Remittance Trends 2009: A Better-than-Expected Outcome so Far, but Significant Risks Ahead.

Reinhart, C. M., & Rogoff, K. S. 2008. *Is the 2007 US sub-prime financial crisis so different? An international historical comparison* (Working paper No. w13761). National Bureau of Economic Research.

Reinhart, C.M. & Rogoff, K.S. 2010. *Growth in a Time of Debt,* (Working paper No. w15639) National Bureau of Economic Research.

Reisen, H. & Soto, M. 2001. Which Types of Capital Inflows Foster Developing-Country Growth? *International Finance*, 4(1), 1-14.

Republic of South Africa (RSA), 2014. State of the Nation Address 17 June, 2014. [Online] Available: *http://www.gov.za/state-nation-address-his-excellency-jacob-g-zuma-president-republic-south-africa-occasion-june-2014* (Accessed 19 June, 2014).).

Rodrik, D. & Velasco, A. 1999. *Short-Term Capital Flows.* NBER Working paper series. WP 7364. *http://www.nber.org/papers/w7364*. National Bureau of Economic Research.

Rousseau, P.L. & Wachtel, P. 2000. Equity Markets and Growth: Cross-Country Evidence on Timing and Outcomes, 1980–1995. *Journal of Banking & Finance*, 24(12), 1933-1957.

Seddighi, H. Lawler, K.A. & Katos, A.V. 2000. *Econometrics. A practical Approach.* Psychology Press. London and New York, Routledge, 2000. ISBN 0415156440. W323979.

Shaheen, S., Ali, M., Maryam, F. and Javed, F. 2013. Impact of foreign capital inflows on domestic saving of Pakistan. *Interdisciplinary Journal of Contemporary research in business*, 4(10).

Singh, A. & Weisse, B.A. 1998. Emerging Stock Markets, Portfolio Capital Flows and Long-Term Economie Growth: Micro and Macroeconomic Perspectives. *World Development*, 26(4), 607-622.

Sooreea-Bheemul, B. & Sooreea, R. 2012. Mauritius as a Success Story for FDI: What Strategy and Policy Lessons can Emerging Markets Learn? *Journal of International Business Research*, 11(2), 119-144.

Soto, M. 2000. *Capital flows and growth in developing countries: Recent empirical evidence.* OECD Development Centre. Working paper No. 160 (Formerly technical paper No. 160) Research programme on: Capital movement and development)

Stiglitz, J.E. 2000. Capital Market Liberalization, Economic Growth, and Instability. *World Development*, 28(6), 1075-1086.

Svensson, J. 1999. Aid, Growth and Democracy. *Economics & Politics*, 11(3), 275-297.

Taslim, M.A. & Weliwita, A. 2000. The Inverse Relation between Saving and Aid: An Alternative Explanation. *Journal of Economic Development*, 25(1), 75-94.

Temple, J.R. 2010. Aid and Conditionality. *Handbook of development economics*, 5, 4415-4523.

Tsai, P. 1994. Determinants of Foreign Direct Investment and its Impact on Economic Growth. *Journal of Economic Development*, 19(1), 137-163.

Trading Economics, 2016. South Africa [Online] Available: *http://www.tradingeconomics.com/south-africa/currency* (Accessed 18 January, 2016).

Tswamuno, D.T., Pardee, S. & Wunnava, P.V. 2007. Financial Liberalisation and Economic Growth: Lessons from the South African Experience. *International Journal of Applied Economics*, 4(2), 75-89.

Ugochukwu, U.S., Okore, O.A. & Onoh, J.O. 2013. The Impact of Foreign Direct Investment on the Nigerian Economy. *European Journal of Business and Management*,5(2), 25-33.

UNCTAD. 2006. *World Investment Report.* Geneva: United Nations Conference on Trade and Development (UNCTAD).

UNCTAD. 2010. *World Investment Report.* Geneva : United Nations Conference on Trade and Development (UNCTAD).

Were, M. 2001. *The impact of external debt on economic growth in Kenya: An empirical assessment.* WIDER Discussion Papers//World Institute for Development Economics (UNU-WIDER)

Wesso, G.R. 2001. The Dynamics of capital flows in South Africa: An empirical investigation. *South African Reserve Bank (SARB) Quarterly Bulletin, June 2001*. South Africa.

World Bank 2011. World Bank World Development Indicators Database (WDI). Washington D.C. World Bank.

World Bank 2013. World Bank Global Financial Development Database (GFDD). Washington D.C. World Bank.

World Bank 2013. World Bank World Development Indicators Database (WDI). Washington D.C. World Bank.

World Bank 2014. World Bank Global Financial Development Database (GFDD). Washington D.C. World Bank.

World Bank 2014. World Bank World Development Indicators Database (WDI). Washington D.C. World Bank.

World bank 2015. World Bank World Development Indicators Database (WDI). Washington D.C. World Bank.

Yoshino, N., Kaji, S. & Asonuma, T. 2015. Comparison of Static and Dynamic Analyses on Exchange Rate Regimes in East Asia. *ADBI Working Paper Series, No. 532.* Asian Development Bank Institute

Younger, S.D. 1992. Aid and the Dutch Disease: Macroeconomic Management when Everybody Loves You. *World Development,* 20(11), 1587-1597.

Zafar, A. 2011. "Mauritius: An Economic success story". African success stories project, World Bank Group.

Zhang, K.H. 2001. Does Foreign Direct Investment Promote Economic Growth? Evidence from East Asia and Latin America. *Contemporary Economic Policy*, 19(2), 175-185.

Zhou, S. 2003. Interest rate linkages within the European Monetary System: new evidence incorporating long-run trends. *Journal of International Money and Finance*, 22(4), 571-590.

APPENDICES

Table A2.1: Summary table of Literature review on Foreign Capital flows

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Khan and Reinhart (1990)	24 developing countries	1970-1979 (average of the period)	Cross section analysis	Real GDP	Total gross FCF, gross private FCF, gross public sector FCF	Private investment has a larger direct effect on long-run growth than public investment.
2	De Gregorio (1992)	12 Latin American countries	1950-1985	SUR, GLS	GDP per capita growth	Investment, foreign investment	
3	King, R. and Levine, R. (1993a)	80 countries	1960-1989; annual	Cross country regression analysis	Real per capita GDP growth	Real per capita capital stock and domestic investment.	**Positive**. Financial services promote economic growth through increase in capital accumulation level and by improvement in the efficient capital utilization.
4	Grilli,V. and Milesi-Ferretti, M. (1995)	61 countries	1966-1989; 5 year averages	Panel data estimation; pooled IV	Growth rate of real per capita GDP		
5	Levine, R. and Zervos, S. (1998)	47 countries	1976-1993; annual	Instrumental variables	Output, capital stock and productivity growths and savings	Stock market indicators: Turnover, value added, capitalisation, volatility, CAPM integration and APT integration	**Positive**. Stock market liquidity and banking development are both positively and robustly correlated with contemporaneous and future rates of economic growth, capital accumulation and productivity growth
6	Bosworth and Collins (1999)	58 developing countries	1979-1995; Annual and 3-year averages	Fixed effects, OLS and IV regression analysis	Domestic investment, savings and current account	FDI, Portfolio investment and loans	**Mixed**. Positive influence of capital flows on domestic investment. Capital flows used to finance current account deficit for investment.
7	Bailliu, J. N. (2000)	40 developing countries	1975–1995; annual	Panel GMM estimation technique	Real per capita GDP growth rate over a 5year period	Initial real per capita GDP (at start of each 5year period), net capital flows/GDP, net capital flows/GDP x banking sector development, investment/GDP	**Positive**. Capital inflows foster higher economic growth, above and beyond any effects on the investment rate, but only for countries where the banking sector has reached a specific development stage. Domestic financial sector is crucial in the promotion of economic growth by international capital flows in developing countries.
8	Soto, Marcelo. (2000)	44 non-OECD (developing) countries	1986-1997; annual	Panel data estimation	GNP growth {log(GNPt) − log(GNPt-1)}	FDI, portfolio equity flows (PEF), portfolio bond flows (PBF), bank credits	FDI and portfolio equity flows show a robust **positive** correlation with growth while portfolio bond flows are **not significantly linked** to economic growth. Economies with undercapitalised banking systems,

						(BCRED) and trade-related credits (TCRED). These are all measured as share of GNP	bank-related inflows (short- and long-term) are **negatively** correlated with growth rate.
9	Quinn, D., Inclan, C. and Toyoda, A. (2001)	80 countries	1950-1997; 5year average.	Per capita ppp-adjusted economic Pooled, cross-section, time-series (PCSTS) models	GDP	Capital account openness, per capita income measured at the beginning of the period	**Positive** only in countries with strong welfare states. Capital account liberalisation has a robust and direct effect on economic growth in most countries but does not result in higher growth in emerging market democracies that have weak welfare states
10	Reisen, H. and Soto, M. (2001)	44 countries	1986-1997; annual	Panel data analysis – GMM technique	Real annual growth of GNP per capita	FDI, FP (Equity and Bond flows), Long-term bank credit, Short-term bank lending	**Positive**. Both FDI and Portfolio equity investment have significant impact on growth. Bank lending help growth only if the banking system is well capitalised, otherwise, **negative** effect.
11	Edison, H., Levine, R., Ricci, L. and Sløk, T. (2002)	57 countries	1980-2000; annual	Panel data estimation	Real per capita GDP growth	FDI and Portfolio inflows and outflows as share of GDP (Capital flows). FDI and Portfolio inflows only as share of GDP (Capital inflows).	**Mixed.** International financial integration accelerates economic growth after taking into consideration economic, financial, institutional, and policy characteristics.
12	Oliva, M. A. and Rivera-Batiz, L. (2002)	119 developing countries	1970-1994; annual and 5-year averages	3 stage least square regression	Real per capita growth rate	FDI (gross inflows), DI, Capital inflows (KF) – FDI liabilities, portfolio flow liabilities, and other investment flow liabilities. (All as % of GDP)	**Mixed**. Direct growth effects of democracy are positive. Higher FDI/GDP is linked to faster growth rate. FDI/GDP is greater than DI/GDP. No clear link between other capital flows and growth. Positive effect of FDI on growth.
13	Moss, T.J, Ramachandra n V and Shah, M. (2004)	3 countries in East Africa (Tanzania, Kenya and Uganda)	Firm survey	Probit method		FDI	**Positive**.
14	Baharumshah , A. and Thanoon, M. (2006)	8 Asian countries - Malaysia, the Philippines, Singapore,	1982-2001; annual	Panel Dynamic Generalised Least Squares (DGLS)	Economic growth	FDI inflow, short-term debt and long-term debt.	**Positive** contribution of FDI to growth in East Asian economies. Domestic savings adds positively to long-term economic growth. FDI is growth enhancing both in the short and long run. FDI influence on growth is larger than domestic savings while short-term capital

		Thailand, Korea, China, Myanmar, and Fiji					inflow has adverse effect on long-term and short-term growth prospects and also sensitive to long-term capital inflows. Long-term debt has positive effect on growth only in the short-term.
15	Chinn, M. and Ito, H. (2006)	108 countries; 22 industrialized, 31 emerging, and 55 developing countries	1980-2000; 5-year period	OLS and FE	Average annual growth rate	Financial openness, Trade openness and stock market	**Mixed**. Higher level of financial openness spurs equity market development only if a threshold level of legal system and institutions general development has been reached. Trade openness is a prerequisite for capital account liberalisation while banking system development is a precondition for equity market development.
16	Kose, Prasad, Rogoff and Wei (2009)	71 countries: 21 Advanced, 20 Emerging and 30 developing countries	1970-2004				Financial integration brings collateral benefits, greater financial development and better macroeconomic policies. Does not necessarily translate to growth outcomes.
17	Lane and Milesi-Ferretti (2006)	145 countries	1970-2004	Cross country		FDI, portfolio equity investment, external debt and official reserves	
18	Prasad, E., Rajan, R., and Subramanian, A. (2007)	103 countries: 22 transition; 22 industrial; 28 non-transition and 31 non-industrial countries.	1970-2004	Cross-section regression and Panel GMM technique	Annual average growth rate of purchasing power parity-adjusted GDP per capita	ratio of stock of inward FDI to GDP, the ratio of the stock of inward FDI and portfolio investment to GDP, the net flow counterparts of these two ratios, and the average current account deficit	Financial openness may be required to induce domestic financial development. This suggests that even though reformers in developing countries might want to wait to achieve a certain level of financial development before pushing for financial integration, the prospect of financial integration and ensuing competition may be needed to spur domestic financial development. Foreign capital may harm economic growth in poor countries.
19	Klein and Olivei (2008)	21 OECD Countries and 74 non-OECD Countries	1986-1995; annual data and 1976-1995.	Panel cross-sectional data estimation and OLS	GDP growth rate	Capital account liberalisation and financial depth and openness.	**Positive**. Countries having open capital accounts had a significantly greater increase in financial depth and greater economic growth for the 20 year observation.
20	Mileva, E. (2008)	22 transition economies	1995-2005; annual	Static and dynamic panel techniques	Domestic investment as a share of GDP	FDI, Foreign loans, Portfolio flows	**Positive**. Spillover effect of FDI on DI for countries with less developed financial markets and weaker institutions. For emerging countries with stronger governance indicators, long-term loans increase DI. No effect of portfolio flows on DI.

21	Asiedu, E., Jin, Y. and Nandwa, B. (2009)	35 low-income countries (26 SSA and 9 non-SSA); 28 SSA countries.	1983-2004	3SLS, GMM	Ratio of net FDI flows to GDP	FDI/GDP, Aid/GDP	Risk has a negative consequence on FDI and aid reduces but cannot completely take away the adverse effect of risk
22	Macias, Jose B and Massa Isabella (2010)	15 Selected SSA countries	1980-2008	Bias corrected least squares dummy variable (LSDV) estimator	Real GDP per capita	Cross-border bank lending, FDI, Bonds flows, Portfolio equity flows	**Positive** impact on growth for FDI and cross-border bank lending. **No impact** for portfolio equity flows and bond flows
23	Aizenman, J., Jinjarak, Y., and Park, D. (2013)	105 countries	1990–2010; annual	Panel data estimation. cross-sectional regressions and the fixed-effects estimation	Economic growth (GDP per capita)	Lagged foreign Capital flows as % of GDP (FDI inflow, FDI outflow, PI, equity inv., and short-term debt)	The link between growth and lagged capital flows depends on the type of flows, economic structure, and global growth patterns - Robust relationship between FDI (both inflows and outflows) and growth. The relationship between growth and equity flows is smaller and less stable. Finally, the relationship between growth and short-term debt is nil before the crisis, and negative during the crisis
24	Murshid, A. & Mody, A. (2011)	87 and 61 countries	1980-2003; annual	Panel data, System-GMM estimator	log difference of chained real GDP (GDP growth)	Sum of net direct investment, net portfolio flows, and other net private capital flows. Foreign aid (ODA)	**Negative**. Adverse relationship between capital flows and growth which is particularly characteristic of heavily aid-dependent countries that are developmentally weak. Growth and capital flows are positively correlated during periods of low volatility
25	Driffield, N. and Jones, C. (2013)	Almost all developing countries from WDI	1984-2007; unbalanced panel of annual data and 5-year average.	3SLS panel system estimator	GDP per capita growth	ODA, FDI and workers' Remittances expressed as a percentage of GDP	**Positive**. All sources of foreign capital have a **positive and significant impact** on growth when institutions are taken into account. Both FDI and migrant remittances have **positive** impact on growth. ODA has **negative** and significant impact on economic growth, **only positive** when the bureaucracy of disseminating is taken into account.

Source: Author's compilation

Table A2.2: Summary table of Literature review on Foreign direct investment

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Tsai, P.L. (1994)	62 countries and 51 countries	2 periods of observation 1975-1978; 1983-1986	2SLS	Per capita FDI. Annual growth rate of per capita GDP	Per capita GDP, stock of FDI/GDP	Market size hypothesis receives stronger support than the growth hypothesis.
2	Balasubramanyam, V., Salisu, M and Sapsford, D. (1996)	46 countries	I970-I 985	OLS and GIVE	Growth rate of GDP.	Stock of FDI	**Positive**. Beneficial effect of FDI, in terms of enhanced economic growth, is stronger in those countries which pursue an outwardly oriented trade policy than it is in those countries adopting an inwardly oriented policy
3	Blomstrom, Lipsey, and Zejan (1996)	Over 100 countries	1965-1985; 5-year period	Simple and multiple regressions	Per capita real GDP growth rate	Fixed investment and fixed capital formation (both as a %age of GDP)	Economic growth precedes fixed capital formation. Growth rise leads to increase in capital flows. High levels of capital complement fast per capita income growth but substantial evidence that economic growth is caused by fixed investment.
4	De Mello (1997)	Developing countries	1960-1974	Cross-section and time-series regression	Growth rate of output	FDI inflows	**Positive**. Effect depends on the scope for efficiency spillovers to domestic firms, by which FDI leads to increasing returns in domestic production, and increases in the value-added content of FDI-related production
5	Borensztein, E., De Gregorio, J. and Lee, J-W. (1998)	69 developing countries	1970-1989; annual	Estimation of Panel data using the seemingly unrelated regressions (SUR) Technique with IV cross-section.	Annual growth rate of per capita real GDP	Gross FDI inflow	**Positive**. FDI has a positive effect on economic growth only when human capital has reached a particular threshold (adequate absorptive capability of the advanced technologies) in the host country. FDI contributes more to growth than domestic investment.
6	Aitken and Harrison (1999)	Venezuela; 43010 sample	1976-1989	Panel cross section OLS	Log of real output for plant	Capital	Mixed evidence of FDI on local firms. Negative effect of productivity of domestic firms due to rise in foreign

		size from over 4000 plants		and WLS	*i* in sector *j* at time *t*		firms. Large negative spillovers from foreign investment to domestic firms. Positive correlation but only robust for small enterprises.
7	Balasubramanyam and Salisu (1999)	46 countries	1970-1985	Cross-section regression analysis	Growth rate of real GDP	Foreign capital stock, Domestic capital stock	Size of domestic market is important. Interaction between FDI and human capital has an important influence on growth.
8	De Mello, L.P. (1999)	32 countries	1970-1990	Panel estimation – fixed effects and mean groups estimates	Growth rate of GDP	FDI	**Mixed**. Effect depends on the degree of complementarity and substitution of FDI and DI
9	Djankov and Hoekman (2000)	Czech Republic	1992-1996; firm level data of 513 firms	Probit model. Panel regression estimation using OLS and RE	Growth in sales	FDI and JV	**Positive** impact of foreign investment on total factor productivity growth. Negative spillover effect of FDI on firms with productivity above average which might be responsible for the robust result.
10	Ndikumana (2000)	30 SSA countries	1970-1995		Real per capita GDP	Total GDI+private investment/GDP	Positive relationship between financial development and investment.
11	Koninigs, J. (2001)	3 countries in Europe – Bulgaria, Romania and Poland	1993-1997	Fixed effects panel model using IV in GMM technique. OLS	Output	FDI (foreign investor), FDIXT (interaction of foreign investor with time trend)	**Negative** effect on domestic firms in Bulgaria and Romania while **mixed/insignificant** effect for Poland
12	Nair Reichert and Weinhold (2001)	24 developing countries	1971-1995	MFR Coefficient approach	GDP growth	Growth rates of FDI and GDI (% of GDP)	Strong positive causality from FDI to growth. Efficiency is higher in more open countries. GDI is not statistically significant.
13	Zhang, K.H. (2001)	11 economies in East Asia and Latin America	1960-1992	Error correction model	Average annual growth rate of real GDP	FDI stock/GDP (in log form)	Effect depends on country specific characteristics such as countries that adopt liberalised trade regimes, improve education, and thereby human capital conditions, encourage exports. FDI and maintain macroeconomic stability.
14	Asiedu (2002)	71 countries	1970-1999	OLS estimation	Ratio of net FDI flows to GDP	GDP per capita	Higher returns on investment and better infrastructure have a positive impact on FDI to non-SSA but none to SSA countries. Openness to trade promotes FDI to both categories but more openness leads to less marginal benefits for SSA.

15	Carkovic, M. and Levine, R. (2002)	72 countries	1960-1995	OLS and dynamic GMM panel estimator, 5-yearly	real per capita GDP growth,	FDI is gross private capital inflows as percentage of GDP	**Negative**. The exogenous component of FDI does not exert a robust, independent influence on growth. Thus, while sound economic policies may spur both growth and FDI, the results are inconsistent with the view that FDI exerts a positive impact on growth that is independent of other growth determinants.
16	Chakraborty and Basu (2002)	India	1974-1996	Structural Co-integration VECM. Time-series analysis	Net inflows of FDI	GDI/GDP, real GDP, unit cost of labour	**Positive** impact on FDI flow through trade liberalisation in the short-run. GDP is not granger caused by FDI. Causality is more from GDP to FDI. FDI is labor displacing in India.
17	Alfaro (2003)	47 countries	1981-1999	Cross-section regression	Average real annual per capita growth rate	FDI (separated into manufacturing, services and primary)	**Ambiguous** effect of FDI on growth. Negative in primary sector, positive in manufacturing and ambiguous in services sector.
18	Bengoa and Sanchez-Robles (2003)	18 LAC countries	1970-1999	Panel data analysis	FDI/GDP; Rate of real per capita growth	GDP	**Positive**. Adequate human capital, economic stability and liberalised markets need to be in place for host country to benefit from capital flows.
19	Choe, J. (2003)	80 countries	1971-1995,	Panel VAR model	Annual growth rate of per capita GDP at market prices based on constant local currency	FDI inflow to GDP	Causality between economic growth and FDI runs statistically in either direction. However, the effects are more apparent from growth to FDI than from FDI to growth. FDI is associated with growth.
20	Hermes and Lensink (2003)	67 LDC countries	.1970-1995	Cross sectional OLS regression analysis. Panel estimation using common constant, FE and RE.	Per capita GDP growth rate (average)	Gross FDI/GDP (average)	**Mixed.** Positive effect of FDI on economic growth where there is a sufficiently developed financial system in the receiving country. SSA has weak financial system so FDI does not contribute positively.
21	Kim and Seo (2003)	Korea	1985-1999	VAR			**Positive** but insignificant effect of FDI on growth while GDP growth has significant and highly persistent effect on the future level of FDI.
22	Akinlo, A. (2004)	Nigeria	1970–2001	ECM. OLS regression	Real GDP growth	Private capital stock (private investment) and Stock of foreign investment.	Both private capital and lagged foreign capital have small and insignificant effect on economic growth. Support for extractive FDI not growth increasing as manufacturing FDI. Export has a positive and statistically significant

							effect on growth. Financial development measured as M2/GDP ratio has significant negative effect on growth, may be due to high capital flight it generates. Labour force and human capital have significant positive effect on growth.
23	Alfaro *et al*. (2004)	71 countries; 20 OECD and 51 non-OECD	1975-1995; annual	Cross-section OLS regression, IV	Growth rate of real per capita GDP	FDI inflow to GDP	**Positive**. FDI plays an important role in contributing to economic growth with well-developed financial markets
24	Makki and Somwaru (2004)	66 developing countries	1971-2000. 3 period averages – 70s, 80s, 90s	SUR, IV-3SLS	Per capita GDP growth rate (mean value in each decade)	FDI, domestic capital investment, initial GDP, trade.	**Positive**. FDI is important for economic growth. FDI stimulates and crowds in DI. The positive effect of FDI is enhanced by the positive interaction with human capital, sound macroeconomic policies and industrial stability.
25	Hansen, H. and Rand, J. (2005)	31 developing countries	1970-2000	Granger causality using Bivariate VAR panel estimation model	GDP	FDI to GDP ratio	Bi-directional causality between the FDI-to-GDP ratio and the level of GDP. FDI has a lasting impact on GDP, while GDP has no long-run impact on the FDI-to-GDP ratio. Evidence in support of the hypotheses that FDI has an impact on GDP through knowledge transfers and technology spillovers.
26	Li and Liu (2005)	84 countries: 21 developed, 63developing	1970-1999		GDP per capita growth	FDI inflow/GDP	**Positive**. Promote growth through interaction term as well (FDI and HC)
27	Apergis *et al.* (2006)	30 countries	1992-2002	Panel bivariate and multivariate co-integration tests	DI (gross fixed capital)	FDI	**Positive**. Significant two-way dynamic relationship between FDI and DI. Positive long-run relationship. Evidence in favour of crowding out effects in developed countries.
28	Lensink and Morrisey (2006)	87 countries; 20 developed	1975-1997; 3 periods (1970s, 1980s and 1990s)	Cross section IV and OLS. Panel estimation FE	Per capita growth rate of GDP	FDI/GDP	FDI is linked to growth. Negative effect of volatility of FDI. Effect of FDI on growth is positive but not robust.
29	Alfaro and Charlton (2007)	29 countries (industry-level dataset)	1985-2000; annual	IV and 2SLS to control for measurement error and endogeneity	Growth in real value-added in each industry in each country for 3 and 5 year periods.	FDI inflows and stocks at industry level.	Quality of FDI affects its growth effects positively. Financial development and human capital are important channels by which FDI can affect growth. FDI is associated with higher growth in value-added. Relation is stronger for industries with higher skill requirements and those that rely more on external capital.
30	Qi (2007)	47 countries:	1970-1971;	ECM	GDP	Gross fixed capital	Capital investment is essential for growth while FDI's

		13 developed, 34 developing	2002-2003			stock, inward FDI stock	effect is uncertain in developing countries. FDI enhances growth only under some conditions. Differences between developed and developing countries.
31	Ndikumana and Verick (2008)	38 SSA countries	1970-2005	FE, OLS	FDI/GDP – net inflow of FDI/real GDP, private investment/real GDP, public investment/real GDP	Domestic investment, GDP growth	FDI crowds in private investment in SSA. The link between FDI and DI runs both ways especially in the case of private investment.
32	Adams, S. (2009)	42 sub-Saharan African countries	1990-2003; annual	Panel data estimation	GDP per capita growth	FDI and DI	**DI is positive** and significantly correlated with economic growth in both the OLS and fixed effects estimation, but **FDI is positive** and significant only in the OLS estimation. FDI has an initial negative effect on DI and subsequent positive effect in later periods The sign and magnitude of the current and lagged FDI coefficients suggest a net crowding out effect.
33	Adjasi, C., Abor, J., Osei, K. and Nyavor-Foli, E. (2012)	32 African countries	1997-2008; annual	Panel data estimation	Economic growth	FDI	FDI only has a significant effect on economic activity when interacted with financial market variables, namely, private-sector credit and savings. FDI is more productive in the presence of well-functioning local financial markets

Source: Author's compilation

Table A2.3: Summary table of Literature review on Foreign portfolio equity flows

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Demirguc-Kunt and Levine (1996)	44 industrial and developing countries	1976-1993				**Positive** relationship between stock market development and economic performance. Level of stock market can be used to predict future economic growth.
2	Reinhart and Calvo (1996)	11 countries on Latin America and Asia	1770-1993	Principal component estimation	Balance on capital account as a %age of GDP	Real short-term US interest rate	International capital movements are significantly affected by variations in US interest rates.
3	Singh and Weisse (1998)		1983-1996				**Negative**. Stock market development and portfolio capital inflows might not lead to faster long-term economic growth for developing countries.
4	Rousseau and Wachtel (2000)	47 countries	1980-1995; annual	Cross sectional IV. Panel VAR using an adaptation of GMM	Average growth rate of per capita real GDP	Market capitalisation, liquid liability, total value traded (all as ratio of GDP)	Stock markets promote economic performance by provision of exit mechanism to venture capitalist, permanent capital to firms, offering liquidity to investors, and generating information about the quality of potential investment.
5	Edwards (2001)	65 countries: 21 industrial and 44 emerging economies	1975-1997	Panel WLS estimation, IV-WLS, W2SLS, W3SLS and SUR	GDP per capita	Level of capital account restrictions. Debt/GDP, Equity/GDP, FDI/GDP	**Positive** relationship between open capital account and growth is only evident after a country has reached a certain degree of development i.e. a particular threshold. Countries with open capital accounts do better than those that are restricted.
6	Durham, J. (2004)	80 countries	1979-1998; annual	Cross-sectional OLS regression	GDP per capita growth	FDI and EFPI	**Negative**. Alleviate economic growth. Lagged FDI and EFPI are dependent on the 'absorptive capacity' of host countries, especially with regard to financial or institutional development
7	Portes and Rey (2005)	14 countries	1989-1996; annual data, bilateral flows	Cross section gravity model. FE panel data estimation, GLS	Equity in log form (gross purchase and sale of portfolio equity)	Market capitalisation	Strong evidence of geographical component importance in international asset flows.
8	Quinn and Toyoda (2008)	94 countries	1950-2004				**Positive**. Equity market has a positive effect on growth
9	Oney, B and Halilsoy, H (2011)	21 high income OECD countries	1980-2001	Cross-country study. OLS technique	Economic growth represented by real per capita GDP, real per capita	Private credit as a proxy for banking development, stock market size and	**No strong evidence** of increase in GDP per capita growth due to banking and stock market development

					physical capital stock growth and productivity growth	market liquidity	
10	Kodongo and Ojah (2012)	4 countries – Egypt, Morocco, Nigeria and South Africa	1997:1-2009:12; monthly data	VAR	Net portfolio flows	Real exchange rate	Non-persistent and relatively volatile portfolio flows do not contribute much to GDP. Net portfolio flows to GDP are low (less than 1%) for all the countries studied
11	Agbloyor *et al.* (2013)	42 countries; 16 countries	1970-2007; 1990-2007	Panel IV 2SLS	Log of FDI, market capitalisation/ GDP	Market capitalisation, stock market turnover	**Positive.** More advanced banking system and well-developed stock market leads to more FDI inflows. Higher FDI inflows lead to development of domestic banking system as well as stock market.

Source: Author's compilation

Table A2.4: Summary table of Literature review on Long-term debt flows

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Fosu (1996)	29 SSA countries	1970-1986	OLS	Mean annual growth rate of GDP	Mean annual gross fixed capital formation/GDP	**Negative.** Averagely, debt has been harmful to growth in SSA. Effect of debt on investment is weak but it adversely influences investment. A high debt country has a reduction in growth of 1.1%. The impact of debt at low investment is (non-monotonic) positive but after a GDI/GDP threshold of about 16%, the impact changes to negative.
2	Ndikumana and Boyce (2003)	30 SSA countries	1970-1996	Annual pooled data fixed effects regression analysis; cross-sectional regression analysis	Ratio of capital flight to GDP	Change in debt as a percentage of GDP, Total debt stock as a percentage of GDP	**Negative**. External borrowing is positively and significantly related to capital flight.
3	Mody and Murshid (2005)	60 developing countries	1979-1999; annual and 3-year period	Instrumental variables estimation and dynamic panel estimator (GMM)	Domestic investment as a percentage of GDP	FDI, commercial bank loans and portfolio flows	**Mixed**. Positive impact of foreign capital inflows on domestic investment in countries with better policies.
4	Adegbite, Ayadi and Ayadi (2008)	Nigeria	1975-2005	OLS and GLS	Annual growth rate of the GDP	Size of external debt stock/GDP, Ratio of debt servicing/GDP, Total investment-output ratio (capital/GDP)	**Negative.** Impact of debt and servicing requirements are negative on growth. External debt helps growth positively to a point then its contributions become negative which shows its effect is non-linear.
5	Reinhart and Reinhart (2008)						Increase in foreign debt during capital inflow increases the probability of financial and economic crisis
6	Bordo, Meissner and Stuckler (2010)	45 countries	1880-1913 and 1973-2003	Probit model, IV	Average growth in real per capita GDP (5 year period)	Level of net capital inflows/GDP, savings/GDP	**Negative**. High ratios of foreign currency debt to total debt (large capital inflows relative to GDP) are associated with heightened risks of currency and debt crisis resulting in permanent output losses.
7	Checherita and Rother (2010)	12 Euro area countries	1970-2008	Panel fixed effects and instrumental variables regression	Per capita GDP growth rate	Government debt to GDP ratio	**Negative**. Non-linear relationship. Concave (U-shaped relationship) with debt tuning point of 90-100% of GDP implying a higher public debt-to-GDP ratio is associated, on average, with lower long-term growth rates at debt

				analysis			levels above the range of 90-100% of GDP
8	Reinhart and Rogoff (2010)	44 countries; 20 advanced, 24 emerging economies	200 years of data. 1946-2009, 1900-2009		Real GDP growth	Average external debt to GDP ratio	**Negative.** Government debt and real GDP growth relationship is weak for debt/GDP ratios below a threshold of 90% of GDP. Above 90%, median growth rates fall by 1% and average growth falls more. Similar threshold for public debt in both advanced and emerging economies. Lower threshold for external debt of emerging economies. Annual growth reduces by 2% when external debt reaches 60% of GDP while growth rates decline to half at higher levels. Inflation rises abruptly as debt increases for emerging economies but no link for advanced economies.
9	Akram, N (2013)	4 South Asian countries: Bangladesh, India, Pakistan and Sri Lanka	1975-2011	FE, RE, Pooled OLS, Dynamic GMM and System GMM	Real GDP growth; Investment – GCF/GDP	PPG external debt/GDP, Domestic debt/GDP, Debt servicing PPG/Export	**Negative.** Both public external debt and debt servicing negatively affect economic growth and investment which points to the presence of "debt overhang effect" and "crowding out effect". Domestic debt was also negatively and significantly related with economic growth and investment which suggests that reliance on debt for development purposes is not a safe option. Discouragement of heavy dependence on external debt since it leads to deteriorating economic growth through its adverse effect on investment.
10	Baum, Checherita-Westphal, and Rother (2013)	12 Euro area countries	1990-2010	Panel GMM, OLS, IV 2SLS	Real GDP growth rate	Debt to GDP ratio, gross fixed capital formation to GDP	**Positive** with low debt to GDP ratio. Short-run impact of debt on GDP growth is positive but with debt to GDP ratio up to 67%, the impact becomes nil and insignificant while with very high debt (over 95%) negative impact is observed.

Source: Author's compilation

Table A2.5: Summary table of Literature review on Short-term debt flows

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Frankel and Rose (1996)	105 countries	1971-1992	Panel	Per capita GDP growth	External debt/GDP	Low ratio of FDI to debt is always linked to high possibility of crash.
2	Sachs, Tornell and Velasco (1996)	20 emerging economies	1985-1995			Short-term capital/GDP, Savings/GDP, Investment/GDP	
3	Eichengreen and Rose (1996)	105 developing countries	1975-1992	Probit regression estimation with maximum likelihood weighted by GNP per capita	Growth rate of GDP per capita	External debt and current account balance (both as %age of GDP)	Banking crisis in emerging markets are strongly associated with adverse external conditions. High northern interest rates strongly linked to banking crisis in developing countries
4	Kaminsky and Reinhart (1996)	20 countries: 15 developing and 5 industrial	1970-1995			Export growth, import growth	Banking crisis help predict the chance of a balance of payment crisis.
5	Radelet and Sachs (1998)	19 emerging market economies	1994-1997	Probit analysis		Short-term debts to foreign banks	Positively associated with crisis.
6	Rodrik and Velasco (1999)	32 emerging market economies	1988-1998	Probit analysis; cross-section and panel with FE regressions	Ratio of Short-term debt to total debt	Debt/GDP; M2/GDP	Other kinds of capital flows should be encouraged and avoid liquidation through FDI. Short-term debt flows worsens the economy in times of crisis.

Source: Author's compilation

Table A2.6: Summary table of Literature review on Foreign Aid

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Papanek (1973)	85 countries	1950-1970; (1950s and 1960s)	Cross country regression analysis. Pooled cross section. Simple least square estimate	Annual rate of increase in GDP	Savings (gross domestic savings), Aid, Foreign private investment (FPI) and Other foreign inflow (OFI)	**Positive** effect
2	Dowling and Hiemenz (1983)	52 Asian countries	1968-1979; 3 year period averages	Cross-section least square regression analysis	Rate of growth of real GDP	FFA, PC and GDS (all as %age of GDP). Including 4 policy variables	**Positive**. The 3 variables (FFA, PC and GDS) have contributed to GDP growth in Asia.
3	Dowling and Hiemenz (1985)	88 countries and 76 countries	1970-1972 and 1976-1978	Cross-section and pooled regressions	Log of per capita aid	Population, Income	Low income countries receive more aid per capita than middle income countries while extremely poor countries were neglected in aid allocations in the 1970s.
4	Mosley *et al.* (1987)	80 less developed countries	1960-1980	Cross-section OLS, 2SLS, 3SLS	Growth rate of GNP	Aid inflows (gross ODA), domestic savings, inflows of foreign private capital (all as %age of NI)	**Negative**. No statistically significant correlation between aid and growth rate of GNP. Donors should concentrate aid on countries with high aid effectiveness such as high rate of return on investment, impact of aid on private investment and percentage of aid to private investment.
5	Levy (1988)	28 (22?) SSA countries	1968-1982; 2 period averages	PCSTS analysis	GDP growth rate and change in GDP growth rate	Aid/GDP and change in Aid/GDP	**Positive**. Both for economic growth and domestic investment
6	Islam, A (1992)	Bangladesh	1972-1988				**Positive.** But weak.
7	Mbaku (1993)	Cameroon	1971-1990				**Positive**.
8	Burnside and Dollar (2000)	56 countries	1970-1993; 4-year period	OLS and 2SLS Regression	real per capita GDP growth	Aid/GDP	**Negative. Positive** impact on growth in developing countries with a good policy environment (fiscal, monetary and trade policies), but little effect in the presence of poor policies
9	Alesina and Dollar (2000)	180 countries	1970-1994; 5 year average period	OLS estimation; Panel regression;	Aid per capita (log)	Net FDI flow to GNP	**Positive**. Positive relationship of aid and democratization.

				Tobit and fixed effect with annual data			
10	Lu and Ram (2001)	56 aid receiving countries	1970-1993; 6 4year panels				
11	Dalgaard and Hansen (2001)	56 countries	1970-1993; 6 4year period	2SLS and OLS	Average growth rate in real GDP per capita	Real EDA – effective development aid - to real GDP (Aid)	No significant impact on growth. With condition on policies, aid spurs growth regardless of policy environment. **(Same sample as Burnside and Dollar)**
12	Hansen and Tarp (2001)	56 countries	1970-1993	Cross country OLS and GMM estimation	Annual growth rate in real GDP per capita	ODA/GDP and FDI/GDP	**Positive**. Increases growth rate and not conditional on good policy. Negative when Investment and Human capital are controlled for.
13	Collier and Dollar (2002)	59 countries	1974-1997; 4 year averages	OLS panel regression analysis	Growth rate of per capita GNP	Net receipts of aid relative to GDP (ODA/GDP)	Aid is allocated inefficiently with regard to poverty allocation. Finance is ineffective in inducing either policy reforms or growth in a bad policy environment.
14	Easterly (2003)	56 countries	1970-1997	OLS, 2SLS	Per capita GDP growth	Net ODA/GDP, Aid/GDP x policy	**Negative.**
15	Islam, M.N. (2003)	32 countries; 21 African, 11 Asian	1968-1992; 5 year averages	Generalised Least Square (GLS)	Average annual rate of real GDP	Aid/GDP (Share of ODA in real GDP)	**Negative**. Aid has negative significant impact on growth. Effect reduces due to interest group pressures. Effect varies substantially across regime types. **Positive** in totalitarian but **negative** in tinpots (weak dictatorship).
16	Moreira, S (2003)	48 developing countries	1970-1998; 6 year averages	GMM estimator	Per capita GDP growth rate	Domestic savings, ODA, private flows and other official flows. (all expressed as % of GDP)	**Positive**. Aid has less effect on growth in the short-term than in the long-term. Time lags in aid-growth relationship are important.
17	Dalgaard, Hansen and Tarp (2004)	65 Countries; SSA and EA	1974-1997 6 4-year periods (lagged)	OLS regression and panel GMM regression	Average growth rate in real GDP per capita	Aid/GDP	**Positive**. Magnitude of effect depends on climate related circumstances. Impact of aid on growth is smaller in countries with large fractions of land in the tropics.
18	Ram (2004)	56 aid receiving countries	1970-1993; 6 4year averages	OLS regression	Rate of growth of real GDP per capita	Aid, Bilateral aid and Multilateral aid	**Negative**. Positive effect when policy variable is interacted with aid disappears when aid is differentiated as bilateral and multilateral
19	Feeny, S (2005)	Papua New Guinea	1965-1999	Time series. ARDL approach to cointegration.	Growth in GDP	Ratio of aid to GDP	**No evidence** of effect of total aid on growth. Project aid has positive impact on growth. Positive during periods of SAP and also positive with the interaction of policies.
20	Karras, G	71 aid	1960-1997	Panel	Growth in per	ODA, Direct investment +	**Positive**. Result of aid on growth is positive, permanent,

	(2006)	receiving developing countries		estimation using fixed effects	capita GDP	portfolio investment (both expressed as per capita and a percentage of GDP)	statistically significant and sizeable. Positive even without the effect of policies.
21	Bulíř and Hamann (2008)	76 countries	1975-2003			Gross and net Aid	
22	Headey (2008)	56 countries	1970-2001				**Positive**. Effect of multilateral aid is greater than bilateral aid during the cold war. **Positive** effect of bilateral aid after cold war.
23	Rajan and Subramanian (2008)						**Negative**. Total aid does not promote growth. Difference in bilateral and multilateral aid was observed
24	Asteriou (2009)	5 South Asian countries (Bangladesh, Nepal, India, Sri Lanka and Pakistan)	1975-2002	Panel Cointegration estimation technique. PMG and MG for pooled maximum likelihood estimation	GDP growth	Aid/GDP	**Positive**. Robust evidence based on sophisticated techniques.
25	Minoiu and Reddy (2010)	107 countries	1960-2000	Cross sectional OLS regression; Panel system GMM estimator	Average per capita GDP growth rate	Development aid, Multilateral aid and Non-developmental aid – averages over 1960-1990 for cross section analysis	**Positive**. Development aid promotes long-run growth.

Source: Author's compilation

Table A2.7: Summary table of Literature review on Remittances

No.	Study	Countries covered	Year covered	Estimation method	Dependent variable	Capital flow (explanatory)	Summary of Findings
1	Beine, Docquier, and Rapoport (2001)	37 developing countries	1988-1994	Cross section data. Regression analysis OLS	Average growth rate of GDP per capita (in PPP)	Average migration rate; Workers remittances in % of GDP	**Positive.** Substantive evidence of the possibility of a potential brain drain. Investment in education is due to migration prospects of better returns on human capital abroad.
2	Amuedo-Dorantes and Pozo (2004)	13 LAC countries	1979-1998	Fixed effects OLS and IV method	GDP per capita	Workers' remittances; foreign aid (both in log form)	**Negative**. Leads to appreciation of exchange rate.
3	Buch and Kuckulenz (2004)	87 developing countries	1970-2000	GLS estimator	GDP per capita	Remittances/GDP and Remittances per capita	**Ambiguous.** Negative, but positive when data for the 1990s are excluded from the analysis. Stable inflow of money to developing countries.
4	Adams and Page (2005)	71 developing countries	1980-2000	OLS regression and IV estimates	GDP per capita in PPP terms	Share of migrants in country population	**Positive**. Effect on poverty is positive through reduction in the level, depth and severity or extent of poverty
5	Chami, Fullenkamp, and Jahjah (2005)	113 countries	1970-1998	Cross-section OLS analysis – Average of 1970-1998. Panel estimation – one- and two-way FE	Log of real GDP per capita	Log of workers remittances to GDP; Investment to GDP	**Negative** correlation between GDP growth and remittances. Effect of remittances on growth is negative even after controlling for the investment to GDP ratio.
6	Iqbal and Sattar (2005)	Pakistan	1972-73 and 2002-03	Multiple regression analysis. OLS	Real GDP growth	Workers' remittances/GDP, Private investment(FDI)/GDP, External debt/GDP	**Positive** and highly significant link between workers' remittances and real GDP growth. Negative impact of external debt on economic growth. Domestic resources may still be the best way to finance growth.
7	Aggarwal, Demirguc-kunt and Peria (2011)	109 developing countries	1975-2007	Dynamic system GMM and IV estimation	FD (ratio of bank credit to the private sector or the share of bank deposits expressed as a percentage of GDP)	Ratio of remittances to GDP	**Positive**. Remittances have a significant and positive impact on bank deposits and credit to GDP therefore a strong support for the view that remittances promote financial development in developing countries
8	Fajnzylber	67 countries; 21	1991-2005	Time-varying	Initial GDP per	Workers Remittances	**Positive**. Remittances have a positive and significant

	and Lopez (2007)	from Latin America and Caribbean		instrumental variables	capita (in logs) and investment rate (as percentage of GDP in logs)	to GDP (in logs)	impact on growth, and that this effect is responsive to the use of external and time-varying instrumental variables to control for the potential endogeneity of remittances. Positive impact on domestic investment.
9	Wagh and Patillo (2007)	44 SSA countries	1975-2004; 5 year averages	RE and FE panel regression estimation	Remittance/ GDP	Log of GDP, Per capita GDP	**Positive**. Remittances serve as a positive determinant of financial development. Size of the economy does not matter.
10	Acosta, P., Calderon, C, Fajnzylber, P. and Lopez, H. (2008)	54 industrial and developing countries	1970-2000; 5 year periods	GMM estimation	Per capita GDP	Remittances/GDP	**Positive**. Increase in growth, reduction in inequality and poverty.
11	Pradhan, G., Upadhyay, M. and Upadhyaya, K. (2008)	39 developing countries	1980-2004; annual	Panel model estimation using both fixed- (accepted) and random-effects (rejected).	Economic growth	Workers' remittances	**Positive** impact on growth.
12	Ahortor and Adenutsi (2009)	31 small open developing countries: 15 SSAs and 16 LACs	1996-2006	System GMM	Log of Real GDP per capita	Log of remittances per capita	**Positive.** Remittances contribute significantly to growth. More to long-run economic growth in LAC than SSA. In dynamic terms, remittances retard growth but with overall positive long-run growth impact across the countries studied.
13	Barajas, A., Chami, R., Fullenkamp, C., Gapen, M. and Montiel, P. (2009)	84 countries	1970-2004; annual	Panel OLS-IV and fixed effect estimations.	Economic growth	Workers' remittances to GDP ratio	**No impact** on economic growth. No robust and significant positive impact of remittances on long-term growth, rather a negative relationship between remittances and growth observed.
14	Catrineseu, Leon-Ledesma, Piracha and Quillin (2009)	162 countries	1970-2003	Cross section estimation – OLS; and panel estimation - GMM	Growth rate of per capita GDP (in log form)	Worker remittances/GDP (in log form)	**Positive**. Remittances more likely to contribute to long-term growth where high quality political and economic policies and institutions are put in place.

15	Giuliano, P. and Ruiz-Arranz, M (2009)	73 developing countries (About 21 African countries)	1975-2002; annual	Panel estimation, OLS and SGMM	GDP per capita growth	Total remittances to GDP ratio.	**Positive**. Remittances boost growth in countries with less developed financial systems by providing an alternative way to finance investment and helping overcome liquidity constraints. Negative relationship between remittances and financial depth. Positive role of remittances on growth is weak. Nil impact until investment is removed from the model, then it becomes marginally significant.
16	Gupta *et al*. (2009)	76 countries (24 SSA)		3SLS estimation technique for cross country analysis which allows for the simultaneous determination of poverty, and remittances	Poverty (log)	Remittances (ratio of GDP)	Remittances, which are a stable, private transfer, have a direct poverty-mitigating effect, and promote financial development. Even after factoring in the reverse causality between remittances, poverty, and financial development, results are still significant. The paper posits that formalizing such flows can serve as an effective access point for ‘‘unbanked” individuals, and households.
17	Mundaca (2009)	25 countries	1970-2002	First difference GMM estimation	GDP growth per capita (annual %)	Workers’ remittances (% of GDP)	**Positive**. Significant positive long-run effect on growth. Financial intermediation increases responsiveness of growth in remittances.
18	Fayissa and Nsiah (2010)	37 SSA countries	1980-2004	OLS, GLS and GMM estimation	Natural log of real GDP per capita	Remittances, Aid and FDI.	**Positive**. Boosts growth in countries where the financial system is less developed by providing an alternative way to finance investment and helping overcome liquidity constraints. Aid – negative while FDI – positive but not significant
19	Chowdhury, M (2011)	Bangladesh	1971-2008; annual	Johansen (1991) Maximum Likelihood (JML) Co-integration and Vector Error Correction Model (VECM)	Financial development	Ratio of remittances to GDP	**Positive**. Remittances have a significant positive effect on financial development while financial sector's development is neutral in its effect on the inflow of remittances
20	Rao and Hassan (2011)	40 countries	1960-2007; unbalanced panel	FE and RE estimation, SGMM	Growth rate of output per worker (5 year average)	Ratio of remittances to GDP	**Negative**. Direct growth effects of remittances are insignificant but small indirect growth effects might be possible.
21	Cooray, A	94 non-OECD	1990-2010	Pooled OLS and	Financial sector	Ratio of migrant	Migrant remittances contribute to increasing the size and

	(2012)	countries		SGMM	size and efficiency (DBA/GDP, LA/GDP, DC/GDP)	remittances to GDP	efficiency of the financial sector.
22	Nyamongo, Misati, Kipyegon and Ndirangu (2012)	36 African countries	1980-2009; 3 year period	Pooled FE and RE using OLS and 2SLS IV	Growth rate of real GDP per capita	Remittances as a percentage of GDP	**Positive**. Remittances are an important source of growth for African countries. They complement financial development and their volatility has negative effect on growth. Growth from financial development is weak in the countries of the study.
23	Ziesemer, T (2012)	52 countries	1972-2005	Panel GMM, OLS and FE	GDP per capita	Workers' remittances/GDP	**Positive** impact of ratio of remittances to GDP on growth. They have direct positive effect on rates of savings and public expenditure on education in addition to the level and growth rate of GDP per capita.
24	Ajilore and Ikhide (2013)	5 SSA countries : Cape Verde, Lesotho, Nigeria, Senegal and Togo	1985 - 2009	ARDL estimation technique	Growth rate of real GDP per capita	Migrant remittances	**Mixed.** Positive and significant effect of migrant remittances on growth in Cape Verde and Nigeria. Negative effect and slightly significant for Lesotho. No evidence of long-run relationship for Senegal and Togo.
25	Lartey (2013)	36 SSA countries	1990-2008	GMM system estimator	GDP per capita growth rate; Investment as percentage of GDP	Remittances/GDP	**Positive**.

Source: Author's compilation

Table A3.1: List and sources of variables used in estimation

	ABBREVIATIONS	VARIABLES	SERIES	SOURCE	DATABASE
1	**LNYPCK**	GDP per capita	GDP per capita (constant 2005 US$) (NY.GDP.PCAP.KD)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
2	**LNFDIS**	Foreign direct investment stock	FDI liabilities stock	International Monetary Fund's International Financial Statistics (IFS) and International Monetary Fund's Balance of Payments Statistics (BOPS)	EWN 19702011 Milesi-Ferreti and Lane data
3	**LNPES**	Portfolio equity liabilities stock	Portfolio equity liabilities stock	World Bank's Global Development Finance database	EWN 19702011 Milesi-Ferreti and Lane data
4	**LNDLS**	Debt liabilities stock	Debt liabilities stock	World Bank's Global Development Finance database	EWN 19702011 Milesi-Ferreti and Lane data
5	**REM**	Personal remittances, paid (current US$)	Personal remittances, paid (current US$) BM.TRF.PWKR.CD.DT	World Bank staff estimates based on IMF balance of payments data.	WDI, World Bank
6	**ODA**	Foreign aid	Net official development assistance received (current US$) DT.ODA.ODAT.CD	Development Assistance Committee of the OECD. Data are available online at: www.oecd.org/dac/stats/idsonline.	WDI, World Bank
7	**LNDI**	Domestic investment	Gross fixed capital formation (% of GDP) (NE.GDI.FTOT.ZS)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
8	**LNGC**	Government consumption	General government final consumption expenditure (constant 2005 US$) (NE.CON.GOVT.KD)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
9	**LNEXP**	Exports	Exports of goods and services (% of GDP) (NE.EXP.GNFS.ZS)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
10	**LNIMP**	Imports	Imports of goods and services (% of GDP) (NE.IMP.GNFS.ZS)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
11	**LNINF**	Inflation	Inflation, consumer prices (annual %) (FP.CPI.TOTL.ZG)	International Monetary Fund, International Financial Statistics and data files.	WDI, World Bank
12	**LNREER**	Exchange rate	Real effective exchange rate index (2005 = 100) (PX.REX.REER)	International Monetary Fund, International Financial Statistics.	WDI, World Bank
13	**LNPC**	Private credit by deposit money banks to GDP (%)	Private credit by deposit money banks to GDP (%) (GFDD.DI.01)	International Financial Statistics (IFS) - International Monetary Fund (IMF)	GFDD, World Bank
14	**LNFD**	Financial development	Liquid liabilities (M3) as % of GDP (%) (GFDD.DI.05)	International Monetary Fund, International Financial Statistics and data files, and World Bank and OECD GDP estimates.	GFDD, World Bank
15	**Y**	GDP	GDP (current US$) (NY.GDP.MKTP.CD)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank
16	**LNXM**	Openness to trade	Trade (% of GDP) (NE.TRD.GNFS.ZS)	World Bank national accounts data, and OECD National Accounts data files.	WDI, World Bank

Source: Compiled by author.

Table A4.1: Summary of Literature review on South Africa

Capital Flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Aziakpono, M. J. (2008)	South Africa	1970 – 2004; annual data	Johansen co-integration	Real GDP	FDI, debt, portfolio equity liability	Positive relationship of FDI on economic growth. Debt has negative impact on economic growth
2	Dzangare (2011)	South Africa	1989(4) – 2009(4); quarterly data	Johansen co-integration	Real GDP growth	FDI, Bank lending, equity and bonds	Positive relationship between private capital flows and real GDP growth
3	Rachdi and Saidi (2011)	100 developed (31) and developing (69) countries including South Africa and Nigeria	1990 – 2009	GMM, WG and GLS estimators	Real GDP per capita	FDI, Portfolio investment (PI)	Statistically significant and positive relationship between FDI and output growth. Negative and significant relationship between PI and growth (negative and not statistically significant in developing economies but positive and significant in developed countries)

Foreign direct investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Fedderke and Romm (2006)	South Africa	1960 – 2002	Johansen-VECM Specification	Economic growth	FDI	FDI is capital intensive and has positive in growth

Foreign Portfolio Equity Investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ferreira and Laux (2009)	50 countries including South Africa	1988 – 2001	OLS in panel data and GARCH model	GDP per capita growth rates	Portfolio flow	Effect of inflows on GDP is strong for less developed countries. Overall, equity investment from outside enhances economic growth
2	Ndong, B (2015)	11 African	1990 – 2013	OLS, 2SLS, 3SLS or	Growth of	Net portfolio equity	Stock market size is a positive

		countries including South Africa, Kenya and Nigeria		ILS (Indirect least square), LSDV (least square dummy variable)	GDP per capita	investment flows (NPEI), NPEI flows volatility, equity returns	determinant of equity returns. Simultaneous evolution of equity returns and economic growth. NPEI flows have a positive but not statistically significant effect on equity returns and economic growth

Foreign debt flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ayadi and Ayadi (2008)	South Africa and Nigeria	1980 – 2007	OLS and GLS	GDP	Foreign debt	Negative impact of debt on growth both in Nigeria and South Africa. Positive to a point in Nigeria, then becomes negative.

Source: Compiled by author

Table A4.2: KPSS Stationarity test results: South Africa

Series	Model	Bandwidth	Level	Bandwidth	1st difference
LNYPCK	Intercept	5	0.195	3	0.283
	Intercept & Trend	5	0.158**	2	0.164**
LNDLS	Intercept	3	0.092	4	0.141
	Intercept & Trend	3	0.089	5	0.083
LNFDIS	Intercept	5	0.202	1	0.279
	Intercept & Trend	5	0.190**	5	0.091
LNPES	Intercept	5	0.509**	1	0.365*
	Intercept & Trend	5	0.195**	6	0.156**
REM	Intercept	5	0.633**	1	0.178
	Intercept & Trend	5	0.176**	0	0.087
LNDI	Intercept	5	0.526**	2	0.133
	Intercept & Trend	5	0.153**	3	0.108
LNEXP	Intercept	4	0.112	5	0.120
	Intercept & Trend	4	0.102	6	0.104
LNFD	Intercept	5	0.704**	2	0.038
	Intercept & Trend	2	0.056	2	0.034
LNGC	Intercept	5	0.696**	14	0.168
	Intercept & Trend	4	0.182**	16	0.155**
LNIMP	Intercept	5	0.224	41	0.500**
	Intercept & Trend	5	0.174**	41	0.500***
LNINF	Intercept	4	0.470**	15	0.278
	Intercept & Trend	4	0.182**	25	0.242***
LNPC	Intercept	5	0.717**	3	0.093
	Intercept & Trend	4	0.167**	3	0.067
LNREER	Intercept	5	0.584**	7	0.105
	Intercept & Trend	2	0.074	7	0.105
LNXM	Intercept	5	0.175	13	0.118
	Intercept & Trend	5	0.140*	13	0.115

Source: Computed by author

Table A4.3: Ng-Perron Unit root test results: South Africa

Series	Model	Lag length	Level	Lag length	1st difference
LNYPCK	Intercept	1	-3.488	0	-16.46***
	Intercept & Trend	1	-4.821	0	-17.117*
LNDLS	Intercept	0	-4.668	0	14.358***
	Intercept & Trend	1	-16.158*	0	-17.372**
LNFDIS	Intercept	0	-3.058	0	-19.842***
	Intercept & Trend	0	-3.361	0	-19.574**
LNPES	Intercept	0	-2.339	4	-0.295
	Intercept & Trend	0	-4.261	2	-3.727
REM	Intercept	1	-2.397	0	-15.674***
	Intercept & Trend	1	-9.795	0	-16.649*
LNDI	Intercept	1	-4.321	0	-15.976***
	Intercept & Trend	1	-9.471	0	-16.833*
LNEXP	Intercept	0	-6.146*	0	-20.330***
	Intercept & Trend	0	-8.118	0	-20.344**
LNFD	Intercept	1	-5.941*	4	-2.404
	Intercept & Trend	1	-35.013***	4	-2.299
LNGC	Intercept	0	0.223	0	-17.099***
	Intercept & Trend	0	-6.617	0	-19.130**
LNIMP	Intercept	0	-6.332*	0	-20.493***
	Intercept & Trend	0	-6.963	0	-20.465**
LNINF	Intercept	0	-6.248*	0	-20.082***
	Intercept & Trend	0	-8.479	1	-39.688***
LNPC	Intercept	1	-2.819	4	-5.663
	Intercept & Trend	1	-16.839*	0	-17.384**
LNREER	Intercept	0	-3.894	0	-17.152***
	Intercept & Trend	1	-20.557**	1	-28.411***
LNXM	Intercept	0	-6.265*	0	-20.420***
	Intercept & Trend	0	-7.174	0	-20.423**

Source: Computed by author

Table A4.4: Johansen Co-integration test results: VAR = {Y, CF, CV}: South Africa

Variables		Obs	K	A	Trace statistics under the H0			Max-eigenvalue statistics under the H0		
Y = LNYPCK		Debt stock								
CF	CV	Obs	K	A	r<0	r<1	r<2	r<0	r<1	r<2
LNDLS	LNDI	41	3	3	27.26[0.09]	5.07[0.80]	0.72[0.40]	22.19[0.04]	4.35[0.82]	0.72[0.40]
	LNEXP	41	4	3	29.09[0.06]	7.52[0.52]	1.00[0.32]	21.57[0.04]	6.52[0.55]	1.00[0.32]
	LNFD	41	3	4	62.24[0.00]	21.61[0.16]	3.61[0.80]	40.63[0.00]	18.00[0.08]	3.61[0.80]
	LNGC	41	4	3	32.26[0.03]	6.42[0.65]	0.23[0.63]	25.85[0.01]	6.19[0.59]	0.23[0.63]
	LNIMP	41	2	2	47.32[0.00]	18.79[0.08]	5.08[0.27]	28.53[0.01]	13.71[0.11]	5.08[0.27]
	LNINF	41	2	4	51.43[0.01]	23.68[0.09]	11.43[0.08]	27.74[0.03]	12.25[0.39]	11.43[0.08]
	LNPC	41	3	4	50.74[0.01]	24.69[0.07]	5.63[0.51]	26.05[0.05]	19.06[0.06]	5.63[0.51]
	LNREER	36	2	4	44.52[0.03]	17.90[0.35]	4.09[0.73]	26.63[0.04]	13.80[0.27]	4.09[0.73]
	LNXM	41	2	2	35.68[0.04]	16.43[0.16]	2.16[0.75]	19.25[0.13]	14.27[0.09]	2.16[0.75]
		Foreign direct investment stock								
LNFDIS	LNDI	41	4	2	58.06[0.00]	24.57[0.01]	11.58[0.02]	33.49[0.00]	12.99[0.14]	11.58[0.02]
	LNEXP	41	3	2	35.78[0.04]	18.45[0.09]	6.09[0.18]	17.33[0.21]	12.36[0.17]	6.09[0.18]
	LNFD	41	2	4	54.72[0.00]	26.56[0.04]	8.37[0.22]	28.16[0.02]	18.19[0.07]	8.37[0.22]
	LNGC	41	2	2	35.20[0.049]	13.09[0.36]	2.38[0.70]	22.11[0.05]	10.71[0.27]	2.38[0.70]
	LNIMP	41	2	2	51.76[0.00]	20.37[0.05]	8.24[0.07]	31.40[0.00]	12.12[0.18]	8.24[0.07]
	LNINF	41	2	4	48.03[0.01]	20.65[0.19]	8.74[0.20]	27.38[0.03]	11.90[0.42]	8.74[0.20]
	LNPC	41	3	4	49.36[0.01]	24.50[0.07]	10.36[0.11]	24.87[0.07]	14.14[0.25]	10.36[0.11]
	LNREER	36	3	4	53.48[0.00]	22.63[0.12]	9.01[0.18]	30.85[0.01]	13.62[0.28]	9.01[0.18]
	LNXM	41	2	2	36.36[0.04]	14.36[0.27]	3.83[0.44]	22.00[0.06]	10.53[0.29]	3.83[0.44]
		Portfolio equity sock								
LNPES	LNDI	41	2	3	33.81[0.02]	10.97[0.21]	0.49[0.48]	22.84[0.03]	10.47[0.18]	0.49[0.48]
	LNEXP	41	2	3	32.65[0.02]	14.36[0.07]	5.32[0.02]	18.29[0.12]	9.04[0.28]	5.32[0.02]
	LNGC	41	3	4	47.66[0.02]	24.00[0.08]	9.23[0.17]	23.66[0.09]	14.77[0.21]	9.23[0.17]
	LNIMP	41	2	3	33.89[0.02]	9.93[0.29]	0.04[0.84]	23.96[0.02]	9.89[0.22]	0.04[0.84]
	LNINF	41	5	4	70.53[0.00]	26.24[0.04]	11.38[0.08]	44.30[0.00]	14.86[0.20]	11.38[0.08]
	LNREER	36	4	4	51.80[0.01]	22.65[0.12]	10.54[0.10]	29.15[0.02]	12.12[0.40]	10.54[0.10]
	LNXM	41	2	3	31.70[0.03]	10.97[0.21]	1.73[0.19]	20.73[0.06]	9.24[0.27]	1.73[0.19]
		Remittances								
REM	LNDI	41	3	2	45.05[0.00]	17.46[0.12]	8.39[0.07]	27.59[0.01]	9.08[0.43]	8.39[0.07]
	LNEXP	41	4	3	31.09[0.04]	9.54[0.32]	1.02[0.31]	21.55[0.04]	8.52[0.33]	1.02[0.31]
	LNFD	41	2	4	57.93[0.00]	26.75[0.04]	7.81[0.27]	31.18[0.01]	18.94[0.06]	7.81[0.27]
	LNGC	41	2	2	35.44[0.04]	13.18[0.35]	6.28[0.17]	22.25[0.05]	6.90[0.68]	6.28[0.17]
	LNIMP	41	4	2	39.40[0.02]	11.84[0.46]	3.11[0.56]	27.56[0.01]	8.73[0.46]	3.11[0.56]
	LNINF	41	2	4	54.03[0.00]	26.70[0.04]	9.59[0.15]	27.33[0.03]	17.11[0.10]	9.59[0.15]
	LNPC	41	4	4	63.72[0.00]	31.10[0.01]	13.71[0.03	32.61[0.01]	17.39[0.095]	13.71[0.03]
	LNREER	36	4	4	59.17[0.00]	26.86[0.04]	8.18[0.24]	32.31[0.01]	18.68[0.06]	8.18[0.24]
	LNXM	41	3	2	34.28[0.06]	11.41[0.50]	1.40[0.89]	22.87[0.04]	10.01[0.33]	1.40[0.89]

Notes: The variables are as defined in Table A3.1 of the appendix. The values in parenthesis [ ] represents probabilities

Source: Computed and compiled by author

Table A4.5: Long-run parameters: Slope Coefficients with apartheid dummy variable in South Africa: DUMA

Y = LNYPCK						Slope Coefficients							
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMA	ECM term	Adjusted R^2	S.Cor VECM	Het
	Debt stock												
LNDLS	LNDI	39	3	3	7.15	-0.87(-1.11)		1.12 (2.65)**	-0.14(-1.92)*	-0.41(-3.05)***	0.26	1.56[1.00]	91.14[0.45]
	LNGC	38	4	3	-0.43	1.00(1.36)		-1.71(-3.37)***	-0.12(-1.67)	-0.36(-2.99)***	0.32	12.32[0.20]	121.97[0.59]
	LNREER	35	2	4	-10.78	-1.38(-3.34)***		0.53(2.54)**	-0.25(-3.95)***	-0.59(-5.20)***	0.47	8.99[0.44]	59.84[0.27]
	Foreign direct investment stock												
LNFDIS	LNEXP	39	3	2	23.33		1.61(3.86)***	-5.84(-3.15***)	-0.01(-1.23)	-0.01(-1.87)*	0.23	5.10[0.83]	81.20[0.74]
	LNGC	40	2	2	5.68		0.26(5.41)***	0.77(3.30)***	0.01(1.37)	-0.11(-3.06)***	0.42	6.20[0.72]	61.11[0.24]
	LNIMP	40	2	2	12.56	-3.50(-1.54)		6.35(6.71)***	-0.08(-1.28)	-0.15(-2.31)**	0.21	8.95[0.44]	40.94[0.90]
	LNINF	40	2	4	9.26		-0.11(-4.68)***	;-0.61(-9.68)***	0.00(0.03)	-0.42(-2.63)**	0.39	10.12[0.34]	48.37[0.69]
	LNPC	39	3	4	0.14		0.41(2.84)***	1.90(1.91)*	-0.01(-1.52)	-0.03(-1.96)*	0.35	8.00[0.53]	88.76[0.52]
	LNREER	34	3	4	1.37		0.04(0.60)	1.34 (4.86)***	-0.03(-2.35)**	0.05(1.43)	0.33	4.69[0.86]	80.16[0.76]
	Portfolio equity stock												
LNPES	LNDI	40	2	3	15.93	-0.71(-0.20)		-2.59(-1.65)	-0.19(-2.04)**	-0.13(-2.47)**	0.22	17.53[0.04]	53.84[0.48]
	LNGC	39	3	4	24.13	1.68(0.63)		-14.24(-5.93)***	-0.28(-2.92)***	0.12(1.48)	0.25	6.58[0.68]	91.33[0.44]
	LNINF	40	5	4	7.07		-0.60(-6.30)***	0.59(3.58)***	0.03(1.97)*	0.06(1.24)	0.56	9.10[0.43]	171.08[0.30]
	Remittances												
REM	LNEXP	38	4	3	7.70		4.26(3.74)***	0.06(0.11)	-0.00(-0.19)	-0.03(-1.50)	0.22	10.78[0.29]	133.57[0.31]
	LNGC	40	2	2	-7.77		-20.76(-3.60)***	6.34(1.98)*	-0.01(-1.62)	0.00(1.78)*	0.38	10.28[0.33]	61.85[0.22]
	LNGC	40	2	2	-0.37	-0.05(-0.19)		0.31(1.98)*	-0.01(-2.26)**	-0.12(-2.75)***	0.34	10.28[0.33]	61.85[0.22]
	LNIMP	38	4	2	5.28		10.29(4.85)***	0.78(1.04)	-0.01(-0.76)	-0.00(-0.41)	0.28	4.80[0.85]	124.75[0.51]
	LNINF	40	2	4	8.87		-1.08(-4.95)***	-0.52(-9.15)***	0.01(1.17)	-0.29(-2.86)***	0.46	2.61[0.98]	54.01[0.47]
					8.19	-0.92(-3.71)***		-0.48(-5.24)***	0.00(0.33)	-0.31(-2.79)***	0.33	2.61[0.98]	54.01[0.47]
	LNPC	38	4	4	-0.40	0.05(0.36)		0.02(0.17)	-0.01(-1.91)*	-0.38(-4.15)***	0.44	23.11[0.01]	127.22[0.45]
	LNXM	38	4	2	6.82		2.48(3.10)***	0.38(1.00)	0.00(0.01)	-0.06(-1.77)*	0.27	9.15[0.42]	145.00[0.12]

Table A5.1: Summary table of Literature review on Nigeria

Foreign Capital Flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Adeniyi, Omisakin, Egwaikhide and Oyinlola (2012)	5 ECOWAS countries Cote d'Ivoire, Gambia, Ghana, Nigeria and Sierra Leone	1970 – 2005	Granger causality in VECM framework	GDP per capita growth	FDI and FD (financial development)	Financial development matters for FDI to have an impact on economic growth in Ghana, Gambia and Sierra Leone while Nigeria shows no evidence of FDI causing growth
2	Adegboye, Ogbebor, and Egharvba (2014)	Nigeria	1981 – 2012; quarterly data	Johansen Co-integration and VECM	Real GDP	FDI, external debt, and short-term capital flows	External debt has the strongest impact on growth in Nigeria
3	Oni, Imolehin, Adelowo and Adejumo (2014)	Nigeria	1980 – 2010	Multiple regression technique (Johansen Co-integration)	Real GDP growth	FDI, FPI, FII (foreign indirect investment)	Foreign private investment positively related with economic growth

Foreign Direct Investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Adelegan, O. (2000)	Nigeria	1970 – 1995	Seemingly unrelated model (SUR) and OLS	Rate of growth of GDP	FDI, GDI	Negative impact. SAP has a negative weak significant impact on FDI
2	Akinlo, (2004)	Nigeria	1970 – 2001	Co-integration and ECM	Economic growth	FDI	Positive relationship. Extractive FDI not growth enhancing as much as manufacturing
3	Ayanwale, (2007)	Nigeria	1970 – 2002	OLS and 2SLS	Economic growth	Non-extractive FDI	Positive contribution of FDI to growth
4	Ilemona, Adofu. (2010)	Nigeria	1986 – 2004; annual data	Ordinary least square (OLS) regression analysis	Economic growth – real GDP	Private FDI; Exchange rate and total domestic savings	Significant impact of FDI on economic growth. Positive relationship but statistically insignificant. Economic growth creates appropriate and conducive environment for FDI through fiscal,

							monetary, general economic policies and stable political environment.
5	Fasanya, I. O. (2012)	Nigeria	1970 – 2010	OLS estimation technique and Co-integration ECM framework (Granger causality)	Growth rate of GDP	FDI; GFCF-domestic capital stock	Positive impact of FDI on economic growth but insignificant positive impact of domestic investment. Provide incentive for innovation and skills development
6	Imoudu, E. C. (2012)	Nigeria	1980 – 2009	Johansen co-integration and VECM	Gross domestic product	Disaggregated FDI – Agriculture, mining, petroleum, manufacturing and telecom	Mining, quarrying, manufacturing and processing sectors are not growth enhancing. Agriculture and telecom positive but only telecom was significant. Positive relationship between openness and real growth
7	Oguijiuba and Obiechina, (2012)	Nigeria	1986 – 2008	Non-restrictive VAR model – Structural VAR (SVAR)	Economic growth	FDI	Negative
8	Abdu, Maryam (2013)	Nigeria					Significant and positive relationship of FDI on economic growth in Nigeria.
9	Obiechina and Ukeje, (2013)	Nigeria	1970 – 2010	Engle-Granger 2-Step procedure. VAR, ECM	Nominal GDP	FDI	Non-statistically significant and weak exogeneity
10	Olayiwola & Okodua (2013)	Nigeria		VECM, Granger causality within Co-integration framework	Real GDP growth rate	FDI inflows	No evidence of export led growth in Nigeria
11	Ugochukwu, Okore and Onoh (2013)	Nigeria	1981 – 2009	OLS technique	Economic growth	FDI	FDI has positive and insignificant impact in the growth of the economy
12	Ajide, K.B. (2014)	Nigeria	1980 – 2010; annual data	Multivariate regression approach. Johansen ECM			Positive effect of FDI on growth but insignificant
13	Olasode, (2015)	Nigeria	1980 – 2012	Johansen Co-integration	Real GDP	FDI	Long-run relationship exists
14	Okonkwo, Udeh & Egbunike (2015)	Nigeria	1990 – 2012	OLS estimation technique	Log of GDP	Log of FDI, export, import, inflation, exchange rate, interest rate and technology	FDI has led to increase in exports in Nigeria. Positive relationship between export and economic growth. Inverse relationship between FDI and GDP

Foreign Portfolio Equity Investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ndong, B (2015)	11 African countries including South Africa, Kenya and Nigeria	1990 – 2013	OLS, 2SLS, 3SLS or ILS (Indirect least square), LSDV (least square dummy variable)	Growth of GDP per capita	Net portfolio equity investment flows (NPEI), NPEI flows volatility, equity returns	Stock market size is a positive determinant of equity returns. Simultaneous evolution of equity returns and economic growth. NPEI flows have a positive but not statistically significant effect on equity returns and economic growth
2	Olotu and Jegbefume, (2011)	Nigeria	1980 – 2009	Engle-Granger and ECM	Growth rate of real GDP	FPI (Net FPI/TVT) TVT – total value traded of shares	Positive relationship between FPI and growth rate of real non-oil GDP

Foreign Debt Flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Adesola (2010)	Nigeria	1981 - 2004		GDP at current market price	Debt service payment	
2	Ezeabasili, Isu, and Mojekwu (2011)	Nigeria	1970 – 2006	Co-integration and ECM	Real GDP growth	External debt, total debt service	Negative relationship of external debt and growth in Nigeria.
3	Ogunmuyiwa (2011)	Nigeria	1970 - 2007		GDP Growth	External debt	Reverse but weak relationship between external debt and growth.
4	Ajayi & Oke (2012)	Nigeria	27 years	OLS estimation technique	National income	Debt service payment. External reserves	External debt burden has an adverse effect on the national income and per capita income of the nation.

Foreign Aid

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Fasanya and Onakoya (2012)	Nigeria	1970 – 2010	Johansen Co-integration	GDP growth rate	Foreign aid	Significant impact on economic growth in Nigeria.

Remittances

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Oke, Uadiale & Okpala (2011)	Nigeria	1977 – 2009	OLS estimation technique and GMM estimator	Log of financial development (ratio of money supply to GDP) and ratio of private credit to GDP	Log of remittances	Remittances positively and significantly influence financial development in Nigeria

Source: Compiled by author

Table A5.2: KPSS Stationarity test results: Nigeria

Series	Model	Bandwidth	Level	Bandwidth	1st difference
LNYPCK	Intercept	5	0.204	4	0.340
	Intercept & Trend	5	0.196**	3	0.136*
LNDLS	Intercept	5	0.261	1	0.641**
	Intercept & Trend	5	0.199**	8	0.107
LNFDIS	Intercept	5	0.456*	4	0.238
	Intercept & Trend	5	0.143*	5	0.118
REM	Intercept	4	0.647**	14	0.225
	Intercept & Trend	3	0.130*	15	0.219***
ODA	Intercept	2	0.332	41	0.500**
	Intercept & Trend	0	0.085	41	0.500***
LNDI	Intercept	4	0.410*	1	0.333
	Intercept & Trend	4	0.184**	7	0.103
LNEXP	Intercept	5	0.631**	1	0.197
	Intercept & Trend	4	0.139*	4	0.054
LNFD	Intercept	4	0.217	2	0.136
	Intercept & Trend	5	0.122*	2	0.112
LNGC	Intercept	4	0.108	2	0.093
	Intercept & Trend	4	0.079	1	0.051
LNIMP	Intercept	4	0.284	14	0.312
	Intercept & Trend	4	0.088	22	0.199**
LNINF	Intercept	5	0.713**	5	0.746***
	Intercept & Trend	5	0.219***	2	0.118
LNPC	Intercept	5	0.498**	5	0.152
	Intercept & Trend	4	0.118	5	0.113
LNREER	Intercept	4	0.315	1	0.098
	Intercept & Trend	4	0.104	2	0.047
LNXM	Intercept	5	0.517**	1	0.239
	Intercept & Trend	4	0.106	3	0.060

Source: Computed by author

Table A5.3: Ng- Perron Unit root test results: Nigeria

Series	Model	Lag length	Level	Lag length	1st difference
LNYPCK	Intercept	0	-0.375	0	-17.708***
	Intercept & Trend	0	-0.969	0	-19.486**
LNDLS	Intercept	0	-1.288	0	-18.501***
	Intercept & Trend	0	-0.804	0	-19.870**
LNFDIS	Intercept	0	-2.434	0	-17.264***
	Intercept & Trend	0	-3.799	0	-19.441**
REM	Intercept	0	-3.349	0	-16.321***
	Intercept & Trend	0	-10.397	0	-16.294*
ODA	Intercept	1	-29.667***	1	-55.970***
	Intercept & Trend	1	-34.599***	1	-57.244***
LNDI	Intercept	0	-2.115	2	-6.386*
	Intercept & Trend	0	-4.082	1	-44.397***
LNEXP	Intercept	1	-1.836	0	-19.466***
	Intercept & Trend	0	-11.706	0	-18.297**
LNFD	Intercept	0	-1.614	0	-19.306***
	Intercept & Trend	0	-4.102	0	-19.349**
LNGC	Intercept	0	-7.315*	0	-15.199***
	Intercept & Trend	0	-8.466	0	-15.124*
LNIMP	Intercept	0	-7.483*	0	-20.587***
	Intercept & Trend	0	-10.552	0	-20.378**
LNINF	Intercept	1	-4.594	0	-3.415
	Intercept & Trend	1	-23.964***	0	-14.292*
LNPC	Intercept	0	-0.360	0	-18.112***
	Intercept & Trend	1	-9.404	0	-18.304**
LNREER	Intercept	0	-3.860	0	-14.792***
	Intercept & Trend	0	-5.671	0	-14.928*
LNXM	Intercept	0	-3.877	0	-20.256***
	Intercept & Trend	0	-9.265	0	-19.425**

Source: Computed by author

Table A5.4: Johansen Co-integration test results: VAR = {Y, CF, and CV}: Nigeria

Variables		Obs	K	A	Trace statistics under the H_0			Max-eigenvalue statistics under the H_0		
Y = LNYPCK		Debt stock								
CF	CV	Obs	K	A	r<0	r<1	r<2	r<0	r<1	r<2
LNDLS	LNDI	31	3	3	35.61[0.01]	11.76[0.17]	2.27[0.13]	23.85[0.02]	9.48[0.25]	2.27[0.13]
	LNEXP	42	5	3	37.76[0.00]	13.59[0.09]	3.31[0.07]	24.7[0.01]	10.28[0.19]	3.31[0.07]
	LNFD	42	3	2	35.71[0.04]	14.52[0.26]	2.78[0.62]	21.19[0.07]	11.74[0.20]	2.78[0.62]
	LNGC	31	2	3	33.07[0.02]	11.16[0.20]	0.11[0.74]	21.91[0.04]	11.05[0.15]	0.11[0.74]
	LNIMP	42	5	3	30.84[0.04]	12.92[0.12]	2.61[0.11]	17.92[0.13]	10.31[0.19]	2.61[0.11]
	LNINF	42	4	4	53.95[0.00]	20.92[0.18]	5.53[0.52]	33.02[0.00]	15.39[0.17]	5.53[0.52]
	LNPC	42	5	2	36.05[0.04]	16.67[0.15]	5.50[0.23]	19.39[0.12]	11.16[0.24]	5.50[0.23]
	LNREER	32	3	3	31.17[0.03]	11.29[0.19]	0.02[0.88]	19.88[0.07]	11.26[0.14]	0.02[0.88]
	LNXM	42	5	3	34.87[0.01]	13.87[0.09]	2.83[0.09]	21.01[0.05]	11.04[0.15]	2.83[0.09]
		Foreign direct investment stock								
LNFDIS	LNDI	31	5	3	93.36[0.00]	19.83[0.01]	7.75[0.01]	73.53[0.00]	12.08[0.11]	7.75[0.01]
	LNEXP	42	6	3	44.82[0.00]	9.67[0.31]	1.33[0.25]	35.15[0.00]	8.33[0.35]	1.33[0.25]
	LNFD	42	5	2	38.38[0.02]	16.66[0.15]	4.62[0.33]	21.72[0.06]	12.03[0.18]	4.62[0.33]
	LNGC	31	2	3	33.14[0.02]	13.78[0.09]	0.07[0.79]	19.35[0.09]	13.71[0.06]	0.07[0.79]
	LNIMP	42	2	3	36.58[0.01]	9.36[0.33]	2.12[0.15]	27.22[0.01]	7.24[0.46]	2.12[0.15]
	LNINF	42	4	4	45.39[0.03]	23.57[0.09]	9.16[0.17]	21.82[0.16]	14.42[0.23]	9.16[0.17]
	LNPC	42	5	2	43.06[0.01]	20.26[0.05]	8.77[0.06]	22.80[0.04]	11.48[0.22]	8.77[0.06]
	LNREER	32	3	3	35.64[0.01]	15.29[0.05]	0.03[0.86]	20.35[0.06]	15.26[0.03]	0.03[0.86]
	LNXM	42	2	3	35.96[0.01]	10.15[0.27]	2.54[0.11]	25.81[0.01]	7.62[0.42]	2.54[0.11]
		Official development assistance								
ODA	LNDI	32	2	3	30.30[0.04]	7.13[0.56]	0.05[0.83]	23.18[0.03]	7.08[0.48]	0.05[0.83]
	LNEXP	43	2	3	37.65[0.01]	14.76[0.06]	1.44[0.23]	22.89[0.03]	13.33[0.07]	1.44[0.23]
	LNFD	42	3	3	33.62[0.02]	12.41[0.14]	1.40[0.24]	21.21[0.04]	11.01[0.15]	1.40[0.24]
	LNGC	32	4	3	41.24[0.00]	13.79[0.09]	0.00[0.99]	27.45[0.01]	13.79[0.06]	0.00[0.99]
	LNIMP	43	4	3	36.04[0.01]	12.33[0.14]	2.89[0.09]	23.71[0.02]	9.44[0.25]	2.89[0.09]
	LNPC	42	3	3	30.61[0.04]	9.11[0.35]	0.16[0.69]	21.50[0.04]	8.96[0.29]	0.16[0.69]
	LNREER	43	3	3	36.01[0.01]	9.93[0.29]	0.01[0.94]	26.09[0.01]	9.92[0.22]	0.01[0.94]
	LNXM	43	4	3	38.15[0.00]	12.95[0.12]	2.92[0.09]	25.20[0.01]	10.03[0.21]	2.92[0.09]
		Remittances								
REM	LNDI	31	2	3	30.56[0.04]	13.54[0.09]	0.38[0.54]	17.02[0.17]	13.15[0.07]	0.38[0.54]
	LNEXP	35	2	3	31.12[0.04]	13.62[0.09]	3.41[0.07]	17.50[0.15]	10.21[0.20]	3.41[0.07]
	LNFD	35	4	3	30.26[0.04]	7.90[0.48]	1.02[0.31]	22.36[0.03]	6.88[0.50]	1.02[0.31]
	LNIMP	35	4	4	75.67[0.00]	35.15[0.00]	16.15[0.01]	40.52[0.00]	19.00[0.06]	16.15[0.01]
	LNINF	33	3	4	52.24[0.00]	26.27[0.04]	11.24[0.08]	25.97[0.04]	15.02[0.19]	11.24[0.08]
	LNPC	35	3	4	53.84[0.00]	23.64[0.09]	10.20[0.12]	30.20[0.01]	13.44[0.29]	10.20[0.12]
	LNXM	35	2	4	46.30[0.02]	22.79[0.12]	9.97[0.13]	23.50[0.098]	12.82[0.34]	9.97[0.13]

Notes: The values in parenthesis [ ] represents probabilities

Source: Computed and compiled by authors

Table A5.5: Long-run parameters: Slope Coefficients with financial liberalisation dummy variable (DUMFLN) in Nigeria

Y = LNYPCK					Slope Coefficients								
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMFLN	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock											
LNDLS	LNDI	28	3	3	23.92	-3.28(-9.52)***		0.57(2.18)**	-0.37(-0.85)	-0.49(-1.62)	0.14	8.49[0.49]	80.01[0.77]
	LNGC	29	2	3	32.34	-4.25(-11.58)***		-0.40(-1.82)*	0.32(1.40)	-0.50(-2.17)**	0.15	12.24[0.20]	60.30[0.26]
	LNINF	40	4	4	46.82	0.69(0.96)		-10.92(-7.01)***	-0.20(-1.62)	-0.60(-3.96)***	0.59	11.13[0.27]	99.73[0.96]
	LNPC	37	5	2	20.72	-2.77(-1.18)		0.76(0.87)	0.18(2.55)**	-0.21(-2.44)**	0.49	6.06[0.73]	144.53[0.83]
		Foreign direct investment stock											
LNFDIS	LNPC	37	5	2	8.22		-0.48(-1.62)	-0.05(-0.12)	-0.03(-1.94)*	0.14(2.30)**	0.10	5.54[0.79]	140.46[0.89]
	LNREER	29	3	3	3.69		-0.74(-1.94)*	-1.12(-4.19)***	0.11(1.68)	0.05(2.45)**	0.11	8.70[0.46]	80.32[0.76]
		Official development assistance											
ODA	LNFD	39	3	3	10.51	-2.69(-1.44)		2.57(2.98)***	0.64(1.65)	-0.51(-4.06)***	0.49	9.89[0.36]	95.17[0.33]
	LNGC	28	4	3	1.69	-0.85(-0.44)		2.26(1.82)*	0.11(0.07)	-0.56(-1.86)*	0.32	11.20[0.26]	120.98[0.61]
	LNIMP	39	4	3	25.32	-2.94(-1.64)		-1.75(-1.92)*	0.07(0.17)	-0.60(-3.48)***	0.44	10.39[0.32]	135.16[0.27]
	LNPC	39	3	3	13.04	-2.37(-1.38)		1.32(2.12)**	0.60(1.56)	-0.67(-4.15)***	0.49	11.03[0.27]	83.58[0.67]
	LNREER	30	3	3	0.20	-2.85(-1.17)		4.04(4.23)***	0.68(0.65)	-0.23(-2.35)**	0.36	6.06[0.73]	96.24[0.31]
		Remittances											
REM	LNFD	31	4	3	-115.65	21.54(4.99)***		-6.41(-2.40)**	-0.27(-0.13)	-0.32(-1.31)	0.38	8.54[0.48]	108.75[0.86]
	LNIMP	31	4	4	6.50		-0.12(3.94)***	-1.03(-5.12)***	0.25(5.48)***	-0.18(-7.46)***	0.78	3.35[0.95]	136.28[0.25]
	LNINF	32	3	4	7.44		0.16(5.24)***	0.10(0.98)	-0.04(-0.96)	0.11(1.75)*	0.10	9.06[0.43]	95.29[0.33]

Source: Computed by author

Table A5.6: Long-run parameters: Slope Coefficients with political regime dummy variable (DUMPR) in Nigeria

Y = LNYPCK					Slope Coefficients								
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMPR	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock											
LNDLS	LNDI	28	3	3	31.15	-4.52(-7.18)***		0.90(1.70)*	0.19(1.40)	-0.50(-2.39)**	0.28	10.66[0.30]	70.39[0.94]
	LNPC	37	5	2	45.03	-6.86(-7.23)***		1.30(4.52)***	-0.01(-0.07)	0.17(1.14)	0.36	10.52[0.31]	154.46[0.65]
	LNREER	29	3	3	8.17		-0.29(-16.88)***	-0.12(-5.58)***	0.04(1.00)	-0.59(-2.55)**	0.13	12.02[0.21]	93.62[0.38]
		Foreign direct investment stock											
LNFDIS	LNPC	37	5	2	6.73		-0.21(-12.39)***	0.19(6.40)***	-0.09(-1.59)	0.36(1.23)	-0.10	6.88[0.65]	157.20[0.59]
	LNREER	29	3	3	80.51		-6.25(-1.90)*	-10.92(-3.70)***	-0.03(-0.83)	-0.00(-1.63)	0.01	11.51[0.24]	89.19[0.50]
		Official development assistance											
ODA	LNFD	39	3	3	5.20	-1.74(-1.28)		2.28(3.16)***	-0.19(-0.50)	-0.55(-3.96)***	0.47	7.10[0.63]	87.79[0.64]
	LNGC	28	4	3	1.33	-0.61(-0.34)		1.73(1.46)	0.48(0.67)	-0.69(-2.20)**	0.37	10.33[0.32]	114.93[0.75]
	LNIMP	39	4	3	27.62	-3.27(-2.34)**		-1.81(-1.52)	-0.65(-1.54)	-0.68(-3.90)***	0.48	6.37[0.70]	134.63[0.28]
	LNPC	39	3	3	5.99	-1.35(-1.22)		1.48(3.33)***	0.14(0.35)	-0.66(-3.79)***	0.45	12.03[0.21]	87.65[0.55]
	LNREER	30	3	3	10.16	-3.38(-1.43)		2.67(3.65)***	0.30(0.55)	-0.34(-2.93)***	0.42	8.30[0.50]	90.30[0.47]
	LNXM	39	4	3	41.25	-4.28(-2.30)**		-3.22(-2.29)**	-0.61(-1.43)	-0.56(-3.91)***	0.51	4.64[0.86]	135.77[0.26]
		Remittances											
REM	LNFD	31	4	3	-147.72	30.78(5.14)***		-15.21(-3.08)***	1.18(1.01)	-0.24(-2.11)**	0.34	8.10[0.52]	121.34[0.60]
	LNIMP	31	4	4	10.81		2.05(2.67)**	9.77(1.76)*	-0.03(-1.07)	0.01(4.03)***	0.52	5.15[0.82]	135.79[0.26]

Source: Computed by author

Table A6.1: Summary table of Literature review on Kenya

Foreign Capital Flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ocharo *et al.* (2014)	Kenya	1970 – 2010	OLS and Granger causality test	Economic growth (GDP growth)	FDI, portfolio investment, cross-border inter-bank borrowing	Positive FDI and statistically significant. Positive FPI and cross border bank borrowing but statistically insignificant. FDI leads to economic growth and economic growth causes cross border inter-bank borrowing.

Foreign Direct Investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Abala, D. O. (2014)	Kenya	1970 – 2010;	OLS	Real GDP growth	FDI	Market size, political stability, openness of the economy and infrastructure increases FDI
2	Ngeny, K and Mutuku, C (2014)	Kenya	1970 - 2011	OLS and EGARCH (determine relationship between FDI volatility and economic growth)	Real GDP growth rates	FDI volatility (lagged FDIGDP and FDIEGARCH)	FDI volatility retards long-run economic growth in Kenya. FDI has a positive effect on growth while FDI volatility has a negative impact on growth. Unstable inflows may dampen investment thereby affecting economic growth
3	Nyamwange, M. (2009)	Kenya	1980 - 2006	OLS	FDI inflow rate (FDI/GDP)	Real GDP	GDP growth has a positive relationship with FDI ratio and is statistically significant to FDI. FDI is attracted as the economy improves.

Foreign Portfolio Equity Investment

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ndong, B (2015)	11 African countries	1990 – 2013	OLS, 2SLS, 3SLS or ILS (Indirect least	Growth of GDP per capita	Net portfolio equity investment flows	Stock market size is a positive determinant of equity returns.

		including South Africa, Kenya and Nigeria		square), LSDV (least square dummy variable)		(NPEI), NPEI flows volatility, equity returns	Simultaneous evolution of equity returns and economic growth. NPEI flows have a positive but not statistically significant effect on equity returns and economic growth

Foreign Debt Flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Were, M (2001)	Kenya	1970 – 1995	OLS Estimation technique	Real GDP growth rate and Private Investment	Stock of external debt to GDP ratio	Negative impact of external debt accumulation on economic growth and private investment in Kenya. Existence of debt overhang problem. Current debt flows stimulate private investment

Foreign Aid

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Ekanayake and Chatrna (2010)	85 countries including Kenya and South Africa	1980 – 2007	Panel least square estimation	Growth rate of real GDP per capita	Foreign aid	Foreign aid has mixed effects on economic growth in developing countries

Remittances

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Mwangi, B and Mwenda, S (2015)	Kenya	1993 - 2013	Granger causality and OLS	Log of GDP growth	Log of real per capita international remittance	International remittances indicators are sigmificant factors influencing economic growth in Kenya. Economic growth in Kenya was found to be largely driven by international remittances.

Source: Compiled by author

Table A6.2: KPSS Stationarity test results: Kenya

Series	Model	Bandwidth	Level	Bandwidth	1st difference
LNYPCK	Intercept	4	0.594**	1	0.286
	Intercept & Trend	4	0.130*	1	0.187**
LNDLS	Intercept	5	0.205	2	0.380*
	Intercept & Trend	5	0.202**	3	0.068
LNFDIS	Intercept	4	0.556**	3	0.116
	Intercept & Trend	3	0.065	4	0.072
LNODA	Intercept	5	0.127	3	0.105
	Intercept & Trend	5	0.128*	3	0.092
PES	Intercept	4	0.574**	3	0.428*
	Intercept & Trend	4	0.195**	34	0.509***
REM	Intercept	5	0.638**	5	0.088
	Intercept & Trend	4	0.102	5	0.085
LNDI	Intercept	4	0.409*	25	0.264
	Intercept & Trend	3	0.1403*	22	0.264***
LNEXP	Intercept	4	0.210	2	0.047
	Intercept & Trend	3	0.066	2	0.037
LNFD	Intercept	4	0.337	3	0.173
	Intercept & Trend	4	0.146*	4	0.114
LNGC	Intercept	5	0.227	6	0.114
	Intercept & Trend	4	0.108	6	0.112
LNIMP	Intercept	4	0.344	31	0.367*
	Intercept & Trend	4	0.182**	24	0.229***
LNINF	Intercept	3	0.088	3	0.140
	Intercept & Trend	3	0.082	3	0.060
LNPC	Intercept	5	0.592**	2	0.131
	Intercept & Trend	4	0.114	2	0.132*
LNXM	Intercept	4	0.131	5	0.190
	Intercept & Trend	4	0.127*	10	0.140*

Notes:
Bandwith – Newey-West automatic using Bartlett kernel
Intercept – model with intercept only
Intercept & Trend – model with intercept and trend
All series are in the natural log form except REM, ODA and POPG
*, **, and *** – denotes the rejection of the null hypothesis of a stationary series 10%, 5%, and 1% level of significance respectively

Source: Computed by author

Table A6.3: Ng- Perron Unit root test results: Kenya

Series	Model	Lag length	Level	Lag length	1st difference
LNYPCK	Intercept	1	0.028	0	-2.809
	Intercept & Trend	1	-5.138	0	-6.774
LNDLS	Intercept	0	-1.702	0	-19.638***
	Intercept & Trend	0	-1.752	0	-19.742**
LNFDIS	Intercept	0	-6.388*	0	-19.929***
	Intercept & Trend	0	-9.385	0	-19.940**
LNODA	Intercept	0	-4.074	0	-20.486***
	Intercept & Trend	0	-4.555	0	-20.495**
PES	Intercept	9	4.057	8	2.145
	Intercept & Trend	8	1.572	8	2.805
REM	Intercept	0	-2.599	0	-18.634***
	Intercept & Trend	0	-9.349	0	-18.882**
LNDI	Intercept	0	-12.086**	0	-18.894***
	Intercept & Trend	0	-14.152	0	-19.533**
LNEXP	Intercept	0	-10.294**	0	-20.479***
	Intercept & Trend	0	-11.792	0	-20.483**
LNFD	Intercept	0	-1.431	0	-19.819***
	Intercept & Trend	0	-5.077	0	-19.924**
LNGC	Intercept	0	-7.689*	0	-17.248***
	Intercept & Trend	0	-8.354	0	-19.472**
LNIMP	Intercept	0	-12.779**	0	-20.043***
	Intercept & Trend	0	-14.504*	0	-19.080**
LNINF	Intercept	0	-12.679**	0	-19.554***
	Intercept & Trend	0	-17.022*	1	-40.497***
LNPC	Intercept	0	1.222	1	-9.590**
	Intercept & Trend	0	-4.988	1	-14.367*
LNXM	Intercept	0	-12.424**	0	-19.991***
	Intercept & Trend	0	-12.551	0	-19.828**

Notes:
Intercept – model with intercept only
Intercept & Trend – model with intercept and trend
All series are in the natural log form except REM and ODA
*, **, and *** – denotes the rejection of the null hypothesis of unit root at 10%, 5%, and 1% level of significance respectively
Please note that the MZa critical values have been used here

Source: Computed by author

Table A6.4: Johansen Co-integration test results: VAR = {Y, CF, CV}: Kenya

Variables		Obs	K	A	Trace statistics under the H0			Max-eigenvalue statistics under the H0		
Y = LNYPCK		Debt stock								
CF	CV	Obs	K	A	r<0	r<1	r<2	r<0	r<1	r<2
LNDLS	LNDI	42	4	4	52.97[0.00]	24.42[0.07]	9.51[0.15]	28.55[0.02]	14.92[0.20]	9.51[0.15]
	LNEXP	42	3	4	47.61[0.02]	22.28[0.13]	7.96[0.26]	25.33[0.06]	14.32[0.23]	7.96[0.26]
	LNFD	42	4	4	62.44[0.00]	25.70[0.05]	10.09[0.12]	36.74[0.00]	15.61[0.16]	10.09[0.12]
	LNGC	42	4	4	50.14]0.01]	22.50[0.12]	6.92[0.35]	27.64[0.03]	15.59[0.16]	6.92[0.35]
	LNIMP	42	3	4	45.59[0.03]	16.22[0.48]	7.22[0.32]	29.37[0.02]	8.99[0.73]	7.22[0.32]
	LNINF	40	2	4	43.12[0.04]	24.02[0.08]	7.43[0.30]	19.10[0.30]	16.59[0.12]	7.43[0.30]
	LNPC	42	4	4	65.26[0.00]	29.84[0.02]	12.04[0.06]	35.42[0.00]	17.80[0.08]	12.04[0.06]
	LNXM	42	3	4	46.97[0.02]	18.28[0.33]	8.17[0.24]	28.69[0.02]	10.10[0.61]	8.17[0.24]
		Foreign direct investment stock								
LNFDIS	LNDI	42	4	4	57.87[0.00]	25.73[0.05]	3.94[0.75]	32.14[0.01]	21.79[0.02]	3.94[0.75]
	LNEXP	42	3	4	47.96[0.01]	18.83[0.29]	5.72[0.49]	29.12[0.02]	13.12[0.32]	5.72[0.49]
	LNFD	42	4	4	51.96[0.00]	22.82[0.11]	2.63[0.92]	29.14[0.02]	20.19[0.04]	2.63[0.92]
	LNGC	42	2	4	45.03[0.03]	18.06[0.34]	5.79[0.49]	26.97[0.04]	12.28[0.39]	5.79[0.49]
	LNIMP	42	3	4	54.17[0.00]	12.03[0.81]	5.67[0.50]	42.14[0.00]	6.36[0.94]	5.67[0.50]
	LNINF	40	2	4	52.59[0.00]	24.51[0.07]	5.45[0.53]	28.08[0.02]	19.06[0.06]	5.45[0.53]
	LNPC	42	4	4	48.80[0.01]	12.97[0.74]	1.64[0.99]	35.83[0.00]	11.34[0.48]	1.64[0.99]
	LNXM	42	3	4	50.86[0.01]	14.65[0.60]	5.99[0.46]	36.21[0.00]	8.65[0.76]	5.99[0.46]
		Portfolio equity stock								
PES	LNDI	35	4	4	75.16[0.00]	25.80[0.05]	11.15[0.08]	49.35[0.00]	14.65[0.21]	11.15[0.08]
	LNEXP	35	3	4	55.07[0.00]	21.40[0.16]	8.50[0.21]	33.66[0.00]	12.90[0.34]	8.50[0.21]
	LNFD	35	3	4	53.20[0.00]	16.15[0.48]	3.39[0.83]	37.05[0.00]	12.75[0.35]	3.39[0.83]
	LNGC	35	3	4	47.95[0.01]	22.68[0.12]	6.84[0.36]	25.27[0.06]	15.83[0.15]	6.84[0.36]
	LNIMP	35	2	4	55.27[0.00]	23.43[0.09]	10.30[0.11]	3.84[0.01]	13.13[0.32]	10.30[0.11]
	LNINF	35	3	4	48.03[0.01]	23.76[0.09]	6.98[0.35]	24.26[0.08]	16.78[0.11]	6.98[0.35]
	LNPC	35	3	4	60.02[0.00]	18.21[0.33]	4.46[0.67]	41.81[0.00]	13.75[0.27]	4.46[0.67]
	LNXM	35	3	4	50.87[0.01]	15.88[0.50]	5.50[0.53]	34.99[0.00]	10.38[0.58]	5.50[0.53]
		Official development assistance								
ODA	LNDI	42	6	4	47.39[0.02]	20.31[0.21]	6.00[0.46]	27.08[0.03]	14.31[0.23]	6.00[0.46]
	LNEXP	43	2	4	39.40[0.11]	11.85[0.82]	3.95[0.75]	27.55[0.03]	7.90[0.83]	3.95[0.75]
	LNFD	42	4	4	42.50[0.06]	12.80[0.75]	4.44[0.68]	29.70[0.01]	8.36[0.79]	4.44[0.68]
	LNGC	43	5	4	51.59[0.01]	22.58[0.12]	9.59[0.15]	29.01[0.02]	12.99[0.33]	9.59[0.15]
	LNIMP	43	4	4	58.66[0.00]	21.45[0.16]	8.65[0.20]	37.20[0.00]	12.80[0.34]	8.65[0.20]
	LNINF	40	2	4	45.57[0.03]	19.42[0.26]	9.09[0.18]	26.15[0.04]	10.33[0.58]	9.09[0.18]
	LNPC	42	4	4	43.96[0.04]	19.33[0.26]	3.81[0.77]	24.63[0.07]	15.52[0.17]	3.81[0.77]
	LNXM	43	4	4	51.51[0.01]	20.25[0.21]	6.43[0.41]	31.26[0.01]	13.82[0.27]	6.43[0.41]
		Remittances								
REM	LNDI	42	4	4	53.35[0.00]	25.42[0.06]	10.95[0.09]	27.93[0.03]	14.47[0.22]	10.95[0.09]
	LNEXP	42	3	4	44.64[0.03]	22.07[0.14]	4.82[0.62]	22.57[0.13]	17.25[0.09]	4.82[0.62]
	LNFD	42	4	4	57.77[0.00]	23.41[0.09]	6.84[0.36]	34.35[0.00]	16.57[0.12]	6.84[0.36]
	LNGC	42	4	4	67.70[0.00]	20.59[0.19]	7.44[0.30]	47.11[0.00]	13.15[0.32]	7.44[0.30]
	LNIMP	42	3	4	37.27[0.16]	11.29[0.86]	5.01[0.59]	25.98[0.048]	6.28[0.94]	5.01[0.59]

LNINF	40	3	4	56.67[0.00]	17.60[0.37]	3.69[0.79]	39.06[0.00]	13.92[0.26]	3.69[0.79]
LNXM	42	4	4	47.74[0.02]	15.37[0.54]	6.63[0.38]	32.36[0.01]	8.74[0.75]	6.63[0.38]

Notes: The variables are as defined in Table 1 of the appendix. The values in parenthesis [ ] represents probabilities

Source: Computed and compiled by author

Table A6.5: Long-run parameters: Slope Coefficients with election periods dummy variable (DUMEP) in Kenya

Y = LNYPCK						Slope Coefficients							
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMEP	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock											
LNDLS	LNEXP	39	3	4	-48.62	10.86(2.96)***		-4.04(-3.06)***	-0.01(-0.26)	-0.13(-4.19)***	0.38	7.67[0.57]	93.27[0.39]
	LNIMP	39	3	4	-19.22	5.78(4.04)***		-3.57(-5.31)***	-0.02(-0.38)	-0.30(-4.40)***	0.42	6.94[0.64]	96.98[0.29]
	LNXM	39	3	4	-31.23	8.26(3.38)***		-3.72(-3.42)***	-0.02(-0.48)	-0.18(-4.19)***	0.40	7.35[0.60]	92.57[0.41]
		Foreign direct investment stock											
LNFDIS	LNDI	38	4	4	-5.99	1.19(1.56)		0.23(0.45)	-0.05(-1.27)	-0.64(-4.32)***	0.29	5.89[0.75]	126.94[0.46]
	LNEXP	39	3	4	-5.05	1.01(1.48)		0.25(1.06)	-0.04(-1.02)	-0.53(-3.64)***	0.25	11.93[0.22]	86.38[0.59]
	LNFD	38	4	4	-5.52	1.14(1.41)		0.14(0.35)	-0.05(-1.31)	-0.67(-4.69)***	0.38	6.90[0.65]	117.43[0.70]
	LNGC	40	2	4	2.96		0.35(3.06)***	0.85(3.90)***	0.01(0.83)	-0.20(-3.24)***	0.53	6.60[0.68]	63.21[0.18]
	LNIMP	39	3	4	-6.02	1.47(1.77)*		-0.28(-0.73)	-0.05(-1.48)	-0.45(-3.89)***	0.29	8.93[0.44]	103.16[0.16]
	LNINF	38	2	4	-2.30	0.68(1.35)		-0.16(-1.11)	-0.03(-0.93)	-0.72(-5.93)***	0.51	6.25[0.71]	59.97[0.27]
	LNPC	38	4	4	-5.07	1.22(1.83)*		-0.14(-0.58)	-0.05(-1.29)	-0.65(-4.04)***	0.32	9.85[0.36]	115.76[0.73]
	LNXM	39	3	4	-6.50	1.46(1.78)*		-0.11(-0.30)	-0.05(-1.39)	-0.45(-3.81)***	0.27	14.62[0.10]	98.22[0.26]
		Portfolio equity stock											
PES	LNDI	29	4	4	65.03	-18.10(-3.71)***		15.42(5.72)***	0.27(2.88)***	-0.22(-3.99)**	0.53	4.68[0.86]	135.20[0.27]
	LNFD	31	3	4	23.76		0.47(3.49)***	-4.56(-9.53)***	-0.00(-0.04)	-0.02(-2.26)**	0.24	5.68[0.77]	90.79[0.46]
	LNIMP	33	2	4	8.45		0.19(4.33)***	-0.59(-4.16)***	0.00(0.07)	-0.11(-2.39)**	0.35	8.46[0.49]	60.58[0.25]
	LNPC	31	3	4	6.89		0.10(6.78)***	-0.21(-5.60)***	0.01(1.61)	-0.48(-6.35)***	0.68	9.26[0.41]	85.91[0.60]
	LNXM	31	3	4	8.94		0.17(3.57)***	-0.62(-5.20)***	-0.00(-0.40)	-0.11(-1.74)*	0.16	15.26[0.08]	98.74[0.25]
		Official development assistance											
LNODA	LNEXP	41	2	4	5.60		0.06(3.13)***	0.14(2.30)**	0.01(1.34)	-0.26(-4.10)***	0.61	8.91[0.45]	66.23[0.12]
	LNFD	38	4	4	-162.46	34.02(4.79)***		-12.75(-3.93)***	0.10(1.40)	-0.13(-3.72)***	0.34	11.74(0.23)	120.69[0.62]
	LNIMP	39	4	4	5.39		0.08(13.13)***	0.19(6.33)***	0..1(2.32)	-0.36(-2.67)**	0.50	7.66[0.57]	139.55[0.19]
					-66.94	12.41(14.05)***		-2.33(-6.11)***	0.06(0.76)	-0.32(-2.48)**	0.28	7.66[0.57]	139.55[0.19]
	LNINF	40	2	4	-60.46	9.90(3.48)***		-2.58(-2.89)***	0.10(1.51)	-0.26(-4.67)***	0.37	12.47[0.19]	56.82[0.37]

	LNPC	38	4	4	-46.24	8.67(5.95)***		2.02(-3.80)***	0.14(1.81)*	-0.54(-3.17)***	0.25	13.70[0.13]	128.06[0.43]
	LNXM	39	4	4	5.37		0.07(11.17)***	0.17(5.50)***	0.01(1.87)*	-0.40(-2.92)***	0.48	10.85[0.29]	150.93[0.06]
		Remittances											
REM	LNDI	38	4	4	7.26		-0.09(-6.02)***	-0.36(-2.50)**	0.01(1.36)	-0.25(-2.04)**	0.46	3.42[0.95]	113.28[0.78]
	LNEXP	39	3	4	6.86		-0.08(-6.65)***	-0.20(-3.29)***	0.00(0.46)	-0.18(-1.52)	0.35	6.55[0.68]	84.14[0.65]
	LNFD	38	4	4	5.72		-0.05(-4.64)***	0.13(1.88)*	0.01(1.05)	-0.52(-3.42)***	0.51	6.26[0.71]	109.12[0.86]
	LNGC	38	4	4	5.58		-0.05(-8.84)***	0.21(4.25)***	-0.00(-0.44)	-0.89(-5.23)***	0.66	10.98[0.28]	122.81[0.56]
	LNIMP	39	3	4	6.59		-0.07(-6.19)***	-0.12(-1.60)	0.00(0.71)	-0.31(-2.55)**	0.43	12.00[0.79]	86.96[0.57]
	LNINF	38	3	4	6.18		-0.04(-4.43)***	-0.10(-2.91)***	0.00(0.12)	-0.53(-4.08)***	0.59	4.59[0.87]	105.24[0.13]
	LNPC	38	4	4	6.10		-0.06(-7.19)***	0.03(0.70)	0.00(0.79)	-0.57(-4.29)***	0.59	8.56[0.48]	108.74[0.86]
	LNXM	38	4	4	6.74		-0.06(-7.89)***	-0.14(-2.59)**	0.01(1.57)	-0.47(-3.40)***	0.55	5.65[0.77]	127.55[0.44]

Source: Computed by author

Table A6.6: Long-run parameters: Slope Coefficients with financial liberalisation dummy variable (DUMFLK) in Kenya

Y = LNYPCK						Slope Coefficients							
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMFLK	ECM term	Adjusted R^2	S.Cor VECM	Het
		Debt Stock											
LNDLS	LNEXP	39	3	4	-36.80	8.82(2.82)***		-3.79(-3.29)***	-0.04(-0.72)	-0.14(-4.11)***	0.39	12.10[0.21]	86.45[0.59]
	LNIMP	39	3	4	-18.23	5.48(4.10)***		-3.29(-4.55)***	-0.03(-0.59)	-0.31(-4.55)***	0.42	6.71[0.67]	91.79[0.43]
	LNXM	39	3	4	-25.27	7.13(3.35)***		-3.46(-3.41)***	-0.04(-0.89)	-0.20(-4.13)***	0.40	8.38[0.50]	88.46[0.53]
		Foreign direct investment stock											
LNFDIS	LNDI	38	4	4	-5.48	1.12(1.55)		0.22(0.44)	-0.08(-2.16)**	-0.67(-4.43)***	0.29	7.58[0.58]	116.36[0.72]
	LNEXP	39	3	4	-4.91	0.96(1.48)		0.30(1.31)	-0.04(-1.08)	-0.56(-3.69)***	0.24	12.31[0.20]	87.40[0.56]
	LNFD	38	4	4	-4.72	0.97(1.25)		0.20(0.52)	-0.04(-1.16)	-0.71(-4.71)***	0.24	8.83[0.45]	124.08[0.53]
	LNGC	40	2	4	1.62		0.37(3.19)***	1.34(5.64)***	-0.01(-1.16)	-0.13(-2.11)**	0.44	9.56[0.39]	61.30[0.23]
	LNIMP	39	3	4	-5.72	1.36(1.68)		-0.16(-0.38)	-0.06(-1.59)	-0.48(-3.93)***	0.28	8.27[0.51]	104.54[0.14]
	LNINF	38	2	4	-1.71	0.58(1.24)		-0.09(-0.62)	0.05(1.58)	-0.75(-5.63)***	0.47	6.32[0.71]	66.46[0.12]
	LNPC	38	4	4	-6.08	1.34(1.97)*		-0.04(-0.09)	-0.05(-1.39)	-0.64(-4.05)***	0.30	10.42[0.32]	123.18[0.55]
	LNXM	39	3	4	-6.00	1.31(1.69)*		0.01(0.02)	-0.05(-1.55)	-0.49(-3.88)***	0.27	13.76[0.13]	100.03[0.22]
		Portfolio equity stock											
PES	LNDI	29	4	4	16.18	-7.43(-2.59)**		9.60(5.94)***	0.16(1.23)	-0.36(-2.76)***	0.35	4.73[0.86]	136.34[0.25]
	LNFD	31	3	4	17.45		0.34(3.34)***	-2.93(-9.05)***	0.00(0.33)	-0.04(-2.27)**	0.26	6.01[0.74]	84.53[0.64]
	LNIMP	33	2	4	8.16		0.19(5.29)***	-0.52(-4.80)***	-0.00(-0.19)	-0.14(-2.34)**	0.36	9.16[0.42]	52.03[0.55]
	LNINF	35	3	4	6.25		0.08(2.36)**	-0.16(-3.44)***	-0.02(-2.25)**	-0.46(-4.91)***	0.54	8.98[0.44]	101.95[0.18]
	LNPC	31	3	4	6.87		0.11(6.49)***	-0.20(-3.78)***	0.00(0.06)	-0.46(-5.89)***	0.65	5.68[0.77]	94.93[0.34]
		Official development assistance											
LNODA	LNEXP	41	2	4	5.64		0.06(3.57)***	0.11(2.04)**	0.02(2.46)**	-0.30(-4.63)***	0.63	6.31[0.71]	62.65[0.20]
	LNFD	38	4	4	-215.15	46.08(4.64)***		-18.93(-4.19)***	0.101.52)	-0.10(-3.66)***	0.31	11.46[0.25]	117.36[0.70]
	LNIMP	39	4	4	5.36		0.08(11.50)***	0.20(5.71)***	0.01(1.03)	-0.41(-2.83)***	0.45	10.68[0.30]	143.80[0.13]
		39			-68.92	12.85(13.37)***		-2.57(-5.19)***	0.01(0.11)	-0.31(-2.42)**	0.27	10.68[0.30]	143.80[0.13]
	LNINF	40	2	4	-66.12	10.97(4.50)***		-2.43(-3.03)***	-0.17(-1.83)*	-0.25(-3.96)***	0.27	9.27[0.41]	44.05[0.83]
	LNPC	38	4	4	-65.00	11.17(6.20)***		-0.66(-0.51)	-0.11(-0.95)	-0.33(-2.21)**	0.10	12.17[0.20]	120.26[0.63]

		Remittances										
REM	LNDI	38	4	4	7.37	-0.10(-6.85)***	-0.39(-2.86)***	0.00(0.18)	-0.27(-2.18)**	0.43	2.15[0.99]	122.07[0.58]
	LNEXP	39	3	4	6.97	-0.09(-7.00)***	-0.22(-3.45)***	-0.00(-0.29)	-0.12(-1.25)	0.31	5.33[0.80]	86.95[0.57]
	LNFD	38	4	4	5.79	-0.05(-5.07)***	0.11(1.64)	0.00(0.74)	-0.56(-3.72)***	0.51	5.60[0.78]	117.91[0.68]
	LNGC	38	4	4	5.61	-0.06(-10.08)***	0.20(4.09)***	-0.01(-2.16)**	-0.92(-5.45)***	0.67	5.67[0.77]	121.40[0.60]
	LNIMP	39	3	4	6.56	-0.07(-6.80)***	-0.11(-1.47)	0.01(1.19)	-0.36(-3.03)***	0.45	13.26[0.15]	89.26[0.50]
	LNINF	38	3	4	6.18	-0.04(-4.42)***	-0.06(-1.80)*	0.00(0.55)	-0.60(-4.79)***	0.63	6.94[0.64]	99.50[0.23]
	LNPC	38	4	4	5.84	-0.06(-10.07)***	0.14(2.15)**	-0.03(-3.59)***	-0.72(-4.91)***	0.62	8.36[0.50]	119.69[0.64]
	LNXM	38	4	4	6.68	-0.07(-8.42)***	-0.12(-2.33)**	0.01(1.00)	-0.54(-3.84)***	0.54	5.21[0.82]	132.16[0.34]

Source: Computed by author

Table A7.1: Summary table of Literature review on Mauritius
Foreign capital flows

Serial number	Study	Countries covered	Years covered	Estimation method	Dependent variable	Capital flow	Summary of findings
1	Durbarry, R. (2004)	Mauritius	1952 – 1999	Co-integration estimation technique	Real GDP	Exports	Tourism has promoted growth in Mauritius. Export growth causes output growth and tourism has a significant positive effect on economic development in Mauritius.
2	Seetanah and Khadaroo (2006)	39 SSA countries including SA, Nigeria, Kenya and Mauritius	1980 - 2000	GMM estimation	Economic growth	Foreign direct investment	FDI does not only preceed growth in sub-Saharan Africa but also follows growth.
3	Blin and Ouattara (2009)	Mauritius	1975 – 2000	ARDL bounds test Co-integration	Real GDP per capita	Foreign direct investment	FDI exerts a highly significant positive impact on economic growth in Mauritius
4	Beghum, Sannassee, Seetanah and Lamport (2011)	Mauritius	1976 – 2009	Vector auto-regressive model (VAR)	Inward FDI	GDP, openness, domestic investment, productivity, real effective exchange rate and corporate tax rate.	GDP, domestic investment, productivity, openness and real effective exchange rate are important in explaining FDI with positive relationship for most except real effective exchange rate showing negative impact.
5	Sooreea-Bheemul and Sooreea (2012)	Mauritius	1970 – 2000	Augmented Cobb=Douglas production function	Real GDP growth rate	Growth rate of FDI stock, productivity, domestic investment, exports	Export was found to be the driving force of growth

Source: Compiled by author

Table A7.2: KPSS Stationarity test results: Mauritius

Series	Model	Bandwidth	Level	Bandwidth	1st difference
LNYPCK	Intercept	5	0.731**	3	0.122
	Intercept & Trend	4	0.08	2	0.11
LNDLS	Intercept	3	0.236	1	0.19
	Intercept & Trend	3	0.115	0	0.219***
LNFDIS	Intercept	4	0.677**	0	0.293
	Intercept & Trend	3	0.142*	2	0.098
ODA	Intercept	5	0.516**	1	0.078
	Intercept & Trend	4	0.144*	1	0.079
LNDI	Intercept	4	0.069	3	0.070
	Intercept & Trend	4	0.068	3	0.070
LNEXP	Intercept	4	0.296	4	0.131
	Intercept & Trend	4	0.182**	5	0.079
LNFD	Intercept	5	0.702**	4	0.128
	Intercept & Trend	4	0.099	4	0.128*
LNGC	Intercept	4	0.177	4	0.072
	Intercept & Trend	4	0.084	4	0.063
LNIMP	Intercept	4	0.376*	7	0.098
	Intercept & Trend	3	0.095	7	0.099
LNINF	Intercept	5	0.746***	2	0.448*
	Intercept & Trend	4	0.184**	3	0.072
LNPC	Intercept	5	0.727**	4	0.261
	Intercept & Trend	4	0.127*	8	0.117
LNXM	Intercept	4	0.359*	7	0.116
	Intercept & Trend	4	0.155**	7	0.097

Notes:

Bandwidth – Newey-West automatic using Bartlett kernel

*, **, and *** – denotes the rejection of the null hypothesis of a stationary series at 10%, 5%, and 1% level of significance respectively

Source: Computed by author

Table A7.3: Ng- Perron Unit root test results: Mauritius

Series	Model	Lag length	Level	Lag length	1st difference
LNYPCK	Intercept	2	0.670	0	-17.690***
	Intercept & Trend	0	-5.117	0	-17.720**
LNDLS	Intercept	1	-153.377***	1	-35.854***
	Intercept & Trend	3	-192728.0**	1	-36.264***
LNFDIS	Intercept	0	2.368	0	-16.950***
	Intercept & Trend	0	-5.121	0	-16.684*
ODA	Intercept	0	-4.795	0	-17.542***
	Intercept & Trend	0	-8.919	0	-17.514**
LNDI	Intercept	0	-7.334*	0	-17.215***
	Intercept & Trend	0	-7.739	0	-17.312**
LNEXP	Intercept	0	-4.877	0	-17.933***
	Intercept & Trend	0	-5.898	0	-17.875**
LNFD	Intercept	3	-2.157	0	-16.720***
	Intercept & Trend	1	-4.852	0	-17.503**
LNGC	Intercept	0	-9.200**	0	-16.395***
	Intercept & Trend	0	-9.678	1	-29.294***
LNIMP	Intercept	0	-7.250*	0	-17.732***
	Intercept & Trend	0	-9.789	0	-17.767**
LNINF	Intercept	8	1.275	0	-14.551***
	Intercept & Trend	1	-7.336	1	-23.304**
LNPC	Intercept	5	91.925***	4	-0.966
	Intercept & Trend	2	-5.580	1	-25.900***
LNXM	Intercept	0	-5.684	0	-17.957***
	Intercept & Trend	0	-7.676	0	-17.957***

Notes: The MZa critical values have been used here

*, **, and *** – denotes the rejection of the null hypothesis of a unit root at 10%, 5%, and 1% level of significance respectively

Source: Computed by author

Table A7.4: Johansen co-integration test results: VAR = {Y, CF, CV}: Mauritius

Variables		Obs	K	A	Trace statistics under the H_0			Max-eigenvalue statistics under the H_0		
Y = LNYPCK		Debt stock								
CF	**CV**	**Obs**	**K**	**A**	**r<0**	**r<1**	**r<2**	**r<0**	**r<1**	**r<2**
	Debt liability stock									
LNDLS	LNDI	36	5	4	58.63[0.00]	26.50[0.04]	9.67[0.14]	32.13[0.01]	16.83[0.11]	9.67[0.14]
	LNEXP	36	5	4	56.34[0.00]	26.04[0.04]	7.85[0.26]	30.30[0.01]	18.19[0.07]	7.85[0.26]
	LNGC	36	2	4	46.85[0.02]	19.49[0.25]	4.73[0.64]	27.35[0.03]	14.77[0.21]	4.73[0.64]
	LNIMP	36	2	4	46.43[0.02]	23.34[0.10]	8.95[0.18]	23.09[0.11]	14.35[0.23]	8.95[0.18]
	LNINF	36	2	4	45.08[0.03]	15.39[0.54]	3.87[0.76]	29.69[0.01]	11.51[0.46]	3.87[0.76]
	LNPC	36	3	4	62.11[0.00]	25.46[0.06]	7.18[0.33]	36.65[0.00]	18.28[0.07]	7.18[0.33]
	LNXM	36	3	4	104.8[0.00]	36.09[0.00]	17.35[0.01]	68.76[0.00]	18.84[0.06]	17.25[0.01]
	Foreign direct investment stock									
LNFDIS	LNDI	36	5	4	52.24[0.00]	25.67[0.05]	9.72[0.14]	26.57[0.04]	15.95[0.15]	9.72[0.14]
	LNEXP	36	3	4	91.54[0.00]	25.41[0.06]	9.08[0.18]	66.13[0.00]	16.33[0.13]	9.08[0.18]
	LNFD	36	3	4	44.20[0.04]	13.59[0.69]	2.39[0.94]	30.61[0.01]	11.20[0.49]	2.39[0.94]
	LNGC	36	4	4	65.46[0.00]	17.50[0.38]	7.17[0.33]	47.96[0.00]	10.33[0.58]	7.17[0.33]
	LNIMP	36	4	4	52.64[0.00]	21.17[0.17]	6.28[0.43]	31.47[0.01]	14.89[0.20]	6.28[0.43]
	LNINF	36	2	4	43.48[0.04]	14.61[0.61]	4.23[0.71]	28.87[0.02]	10.38[0.58]	4.23[0.71]
	LNPC	36	3	4	52.66[0.00]	22.90[0.11]	7.27[0.32]	29.75[0.01]	15.63[0.16]	7.27[0.32]
	LNXM	36	5	4	53.48[0.00]	22.54[0.12]	7.74[0.27]	30.93[0.01]	14.80[0.20]	7.74[0.27]
	Official development assistance									
ODA	LNDI	38	3	4	53.89[0.00]	23.69[0.09]	8.16[0.24]	30.18[0.01]	15.53[0.17]	8.16[0.24]
	LNEXP	38	3	4	67.32[0.00]	23.83[0.09]	8.79[0.19]	43.49[0.00]	15.04[0.19]	8.79[0.19]
	LNFD	38	4	4	58.65[0.00]	17.79[0.36]	7.12[0.33]	40.86[0.00]	10.67[0.55]	7.12[0.33]
	LNGC	38	4	4	77.24[0.00]	27.06[0.04]	10.34[0.11]	50.18[0.00]	16.71[0.12]	10.34[0.11]
	LNIMP	38	4	4	46.19[0.02]	19.42[0.26]	8.57[0.21]	26.77[0.04]	10.85[0.53]	8.57[0.21]
	LNINF	38	3	4	79.62[0.00]	25.49[0.06]	10.70[0.10]	54.13[0.00]	14.79[0.21]	10.70[0.10]
	LNPC	38	4	4	65.72[0.00]	29.42[0.02]	11.89[0.06]	36.30[0.00]	17.52[0.09]	11.89[0.06]
	LNXM	38	3	4	89.17[0.00]	29.20[0.02]	10.15[0.12]	59.97[0.00]	19.05[0.06]	10.15[0.12]

Source: Computed and compiled by author

Table A7.5: Long-run Slope Coefficients with global financial crisis dummy variable (DUMGFC) in Mauritius

Y = LNYPCK						Slope Coefficients							
CF	CV	Obs	K	A	Intercept	Y	CF	CV	DUMGFC	ECM term	Adjusted R^2	S.Cor VECM	Het
	Debt stock												
LNDLS	LNPC	36	3	4	0.23		-1.11(-2.83)***	4.51(2.01)*	-0.02(-0.67)	0.01(1.10)	0.24	6.00[0.74]	87.24[0.56]
	LNXM	36	3	4	4.84		0.38(4.84)***	0.15(0.38)	0.01(0.42)	-0.07(-3.07)***	0.36	7.53[0.58]	82.87[0.69]
	Foreign direct investment stock												
LNFDIS	LNEXP	36	3	4	4.31		0.11(1.16)	0.76(3.85)***	-0.02(-1.10)	-0.25(-3.04)***	0.41	4.98[0.84]	123.41[0.01]
	LNGC	36	4	4	6.47		-0.10(-1.42)	0.37(1.49)	0.02(0.63)	-0.49(-3.08)***	0.14	6.55[0.68]	153.60[0.05]
	LNIMP	36	4	4	4.96		-0.06(-1.40)	0.60(6.75)***	0.04(1.72)*	-0.72(-4.85)***	0.43	13.24[0.15]	135.64[0.26]
	LNINF	36	2	4	1.15		0.04(1.79)*	5.95(9.90)***	-0.00(-0.07)	0.07(1.37)	0.22	60.39[0.00]	87.86[0.00]
	LNPC	36	3	4	1.07		0.02(0.22)	2.29 (7.38)***	-0.00(-0.02)	0.10(1.86)*	0.21	4.70[0.86]	125.91[0.01]
	Official development assistance												
ODA	LNDI	38	3	4	7.00		-0.02(-2.50)**	0.15(4.09)***	0.02(1.58)	-0.77(-5.11)***	0.58	11.57[0.24]	89.55[0.49]
		38	3	4	326.54	-46.68(-5.26)***		6.99(2.26)**	-0.18(-0.59)	-0.16(-1.73)*	0.20	11.57[0.24]	89.55[0.49]
	LNEXP	38	3	4	5.06		-0.03(-2.06)**	0.63(5.25)***	-0.04(-2.77)***	-0.31(-3.57)***	0.53	2.79[0.97]	101.49[0.19]
	LNGC	38	4	4	43.92	0.41(0.17)		-16.88(-6.35)***	-0.75(-3.22)***	-0.93(-5.40)***	0.58	10.00[0.35]	128.96[0.41]
	LNIMP	38	4	4	5.49		-0.00(-0.37)	0.47(10.29)***	0.03(2.61)**	-0.83(-5.67)***	0.63	5.18[0.82]	108.58[0.87]
	LNPC	38	4	4	-285.60		1.76(1.54)	103.35(6.63)***	-0.00(-0.37)	0.01(5.25)***	0.62	11.36[0.25]	110.07[0.84]
		38	4	4	162.65	0.57(0.06)		-58.86(-6.51)***	-0.15(-0.51)	0.11(1.84)*	0.20	11.36[0.25]	110.07[0.84]
	LNXM	38	3	4	5.10		-0.03(-2.80)***	0.52(5.77)***	-0.02(-2.05)**	-0.45(-3.93)***	0.53	7.10[0.63]	100.27[0.22]

Source: Computed by author

Table A8.1: Summary table of results for the four countries.

	South Africa	Nigeria	Kenya	Mauritius
Debt liability flows	Economic growth has a mixed effect on debt flows but statistically insignificant for all models	Negative relationship and statistically significant at 1%. Economic growth has negative and significant impact.	Positive impact of economic growth on debt and statistically significant	Negative relationship statistically significant only for exports
Foreign direct investment	Positive relationship and statistically significant at 1% significance level except inflation which had negative relationship and significant	Negative impact on growth and statistically significant (although weak R^2 values)	Positive relationship and statistically significant only where government consumption was introduced in the model. Positive impact of growth on FDI but insignificant	Negative relationship (only significant for domestic investment and imports at 5% and 10% respectively). Positive but not significant for exports.
Portfolio equity investment	Positive relationship and statistically significant	Not applicable	Positive relationship and statistically significant	Not applicable
Foreign aid (Official development assistance)	Not applicable	Economic growth has a negative relationship with ODA but only significant in two models (imports and openness to trade)	Positive relationship and statistically significant	Negative relationship and statistically significant for domestic investment and imports. Positive but not significant for exports and private credit (at 10%)
Remittances	Mixed effects. Positive and significant (3 models), Negative and significant (2 models)	Positive relationship and statistically significant. Positive impact of growth on remittances and statistically significant (at 1%)	Negative relationship and statistically significant for all models reported	Not applicable

Source: Compiled by author